

The remainder of the assignable overlap tasks have the general characteristic that they are duplications of tasks largely involved when the higher-level performer covers for a subordinate's absence or redoes the tasks of a subordinate. None of these 26 tasks is at a level above 2. One wonders whether there would be an advantage in staffing patterns including more lower-level personnel to cover absences, thus avoiding the need to waste the training of higher level staff whose time is scarce.

Figure 42 indicates that there are 22 tasks which involve overlap which probably cannot be avoided. They are listed to permit review of whether they are, in fact, assignable.

JOB TITLES, TASK FACTORS AND LEVELS

Task data giving the factor and level assignment of each of a title's tasks provide insights into the appropriateness of staff utilization patterns. The basic data of this type are presented in Appendix Table A.10. Figure 43 summarizes these data.

In Figure 43 the titles are presented on the left in descending order by their maximum annual salaries. The next column on the left shows the total tasks for each title. The next seven columns show the numerical and percentage distribution of tasks to task factors. The seven columns on the right show a similar distribution of tasks to HSMS levels. (An optimal allocation of tasks to levels by title would be represented by a diagonal set of entries by level falling from left to right, no more than two or three columns wide.)

Figure 43. DISTRIBUTION OF TASKS TO FACTOR AND LEVEL BY TITLE

Job Title	Total	Factors						Levels							
		One	Two	Three	Four	Five	Six	Unass.	7	6	5	4	3	2	1
Radiologist	8			6		1	1	1		2	4	1			1
				75%		12%	12%	12%		25%	50%	12%			12%
Obstetrician-Gynecologist	21	11	2		1	3	8		4	6	5	3	4		
		52%	10%		5%	14%	38%		19%	29%	24%	14%	19%		
Internist	30	4	3	1	3	14	3	3		8	6	8	9		
		13%	10%	3%	10%	47%	10%	10%		27%	20%	27%	30%		
Pediatrician	26	1	6	1	2	12	2	3		8	5	5	9		
		4%	23%	4%	8%	46%	8%	12%		31%	19%	19%	35%		
Nurse Practitioner	46		4	1	19	14	9	3			7	12	13	8	6
			9%	2%	41%	30%	20%	6%			15%	26%	28%	17%	13%
Lead X-ray Tech., X-ray Tech.	18			11	1			6					5	6	7
				61%	6%			33%					28%	33%	39%
Family Health Worker	63				28	23	4	11			1	4	14	24	22
					44%	37%	6%	17%			2%	6%	22%	38%	35%
LPN (Emergency Room and Unit)	83			1	11	37	1	34				2	11	38	33
				1%	13%	45%	1%	41%				2%	13%	46%	40%
EKG Technician	12			4				8						5	7
				33%				67%						42%	58%
Medical Assistant-Unit	34			1	6	11	1	16					2	17	16
				3%	18%	32%	3%	47%					6%	50%	47%
Dark Room Aide	9			2				7							9
				22%				78%							100%

Note: Tasks appearing in more than one factor or level are counted for each factor or level.
See Appendix Table A.10 for detailed information.

Distribution By Factor

The assignment of tasks to factors provides some interesting insights. There is no uniformity with respect to the spread across factors. It may be that some performers are operating in more areas than is appropriate for optimum use of training time or resources.

The Radiologist is concentrated in Factor Three. The task of instilling the opaque fluid for the hysterosalpyngography (5) requires skills and knowledge in Factors Five and/or Six. This is a seeming waste of the additional training beyond that for Factor Three. One expects the Obstetrician-Gynecologist to have tasks in Factors One and Six. The inclusion of tasks on other factors reflects the fact that the Obs-Gyn specialty is pieced together from surgery and physical treatment, and picks up all the other functions while concentrating on the female anatomy, its dysfunctions, and pregnancy. The Internist and Pediatrician have the most pronounced spread across all factors. With the exception of tasks in Factor Six, these are understandable due to the wide-ranging responsibilities assigned to physicians at the Center.

The fact that the Nurse Practitioner and several of the lower level titles also cover more than three factors is somewhat questionable if sequences are to provide upward movement by building on lower level training. These data suggest the possibility that Nurse Practitioner, Family Health Worker, LPN, and Medical Assistant assignments could be made within the titles to sub-specialties. (Such suggestions will be discussed in Chapter 6.) The distribution for the Nurse Practitioner and

Family Health Worker are similar with respect to Factors Four and Five. A surprising number of LPN tasks are not distinct enough for assignment to any factor.

Distribution By Level

The distribution of tasks by level is of more immediate consequence with respect to utilization. The observations to follow in this and subsequent chapters are suggested by the data, and may be wide of the mark. They are raised for the consideration of the Center or for other institutions with similar profiles for their illustrative value.

For most efficient use of resources, the physician titles should not include tasks below Level 4 (semi-professional) and should probably be concentrated in Levels 5 through 7. The Nurse Practitioner could be expected to perform tasks at Level 5 if special training is provided, and should not have tasks below Level 4 if training is not to be wasted.

The X-ray Technician's two years of training would suggest tasks at Level 4, and not below Level 3. The Family Health Worker, who receives a somewhat higher salary than the LPN, is not required to take the nine months of training for LPN licensure. Neither performer should have tasks above Level 3, nor, probably, below Level 2.

The EKG Technician and the Unit Medical Assistant are both trained at the Center and, though there is a difference in their salaries, one would expect tasks at Levels 1 and 2 to be appropriate. The Dark Room Aide can be expected to have tasks at Level 1.

Figure 43 indicates that all of the physicians have tasks below their minimum desirable levels. Such tasks include loading and unloading the fluoroscopy machine for the Radiologist, doing lab work and some delegatable physical treatments for the Internist, and, similarly, doing lab work and delegatable physical treatments for the Pediatrician.¹

The Nurse Practitioner has 7 tasks at Level 5. There is special training at the Center for five of these. Two teaching tasks, (numbers 120 and 123) cover the formal and informal training of subordinate health workers. There is an indication that specific training for this formal or informal teaching is only partially being provided to the Nurse Practitioners at the Center.

At the other end of the spectrum, the Nurse Practitioner has 13 tasks at Level 3, eight at Level 2 and six at Level 1. Ignoring the administrative tasks at Level 3a in Factor Four, there are 26 out of 46 tasks which do not tap the full potential of the training given the Nurse Practitioner. Inspection of Table A.10 will indicate that these tasks largely overlap with those of lower-level employees or are accounted for by the fact that there are clinical procedures beyond the reach of the Family Health Worker. It would seem probable that someone able to operate

¹ Table A.10 in Appendix A presents the tasks for each title in descending order by level, and it will be obvious by inspection what is involved in the tasks as they are referred to in the text. Table A.1 provides more detailed information on the content of the tasks.

at the RN or LPN level in clinical tasks could relieve the Nurse Practitioner for higher-level assignments. Moreover, it is possible that, with proper training in how to teach subordinates, the Nurse Practitioner might be able to see to it that tasks which overlap with those of subordinates could safely be delegated to those subordinates.

Even with the inclusion of the Lead X-ray Technician's tasks, none of the X-ray Technician tasks appear at Level 4. This was the first evidence for an insight that later received additional support. The X-ray tasks performed at the Center are at Level 3 and do not warrant the two years of training now required for licensure by the New York State Department of Health. (Three states currently require licensure for X-ray Technicians.) Most of the X-ray Technician tasks that are at Level 2, and all of those at Level 1 are also done by the Dark Room Aide or could be assigned to someone at a lower level.

The X-ray tasks at Levels 1 and 2 include some which are done if the Dark Room Aide is absent. Again, the question arises about the advantage of having sufficient numbers of lower level staff to cover for absences at their level so that higher-level staff need not waste their training.

The LPN has two tasks which may be too high for the title if they are to be done properly. These are tasks 171 and 202. The first involves assessment of the urgency of an emergency patient's need to see a doctor (Emergency Room); the other involves giving introductory information on birth control devices. Neither of these two tasks is fully

accounted for in the LPN program that was questioned, and it may therefore be possible that the task adheres in the individual performer's abilities rather than title, or that the tasks are not being performed at an adequate level. This warrants examination by the Center.

On the other hand, there are 33 tasks at Level 1 which the LPN performs and which could properly be done by a Medical Assistant or someone else at the entry Aide level. Forty percent of the LPN tasks do not tap the potential of LPN training. A good deal of overlap and the covering of subordinates' duties is again involved. Similar comments to those already made apply here.

While the LPN receives more credentialled training than the Family Health Worker, their salaries put them on par with each other. They share a common profile with respect to the degree of underutilization. (It is a little worse for the LPN.) About 35 percent of the Family Health Worker's tasks (22 tasks) could be done by a Medical Assistant or someone else at the Aide level.

By way of contrast, however, the Family Health Worker has five tasks which may be beyond the reach of this title's experience and training. These tasks include emergency first aid (91), decision on and referral of the patient to a proper agency (115, already discussed), the two routine examinations (prenatal, 248, and neonate, 250), and teaching the patient basic information on sex, contraception and abortion referral (226).

Task 115 might better be done by the Nurse Practitioner, with whom it overlaps. The level of the first aid which the Family Health Worker provides may be such that a different task is involved from that of the Nurse Practitioner with which it is now shown to overlap. The two examination tasks and the education task may be subject to redoing by the Nurse Practitioner, or may have been overly inflated in task identification. However, if these tasks are, in fact, being taught to be done as stated, then the required effort would be out of line when compared with the other tasks being taught, or one would be led to expect that their performance would be less than satisfactory. It is suggested that these three tasks be reassessed in these terms.

The EKG Technician's assigned tasks are at proper levels. However, there are only 12 tasks involved. The task factor data suggest the possibility that job enrichment would be warranted here. The EKG Technician could profitably be involved with additional clinical work, especially eye tests and preparation for X-ray tasks.

The Unit Medical Assistant is lower on the wage scale than the EKG Medical Assistant. The tasks for this title number 34, as compared with 12, and include two at Level 3. The care of minor wounds (218) and the reinforcement in use of contraceptive devices (258) tasks could actually be less demanding than was determined in task analysis. It was coded to require knowledge about care of wounds and healing. It may be that the task is not being performed at such a level or that undue train-

ing is being focused on tasks 218 and 258 compared with the other 32 tasks of the title. The Center might do well to inspect these possibilities.

The tasks of the Dark Room Aide are all at Level 1. This is appropriate. Yet, one wonders about the fact that only a few hundred dollars per year separate this title from those of Medical Assistant or EKG Technician. In the case of the Dark Room Aide there is the feeling that the job should be reserved for limited capabilities or be enriched to provide diversity and a chance to move up. Only two of the nine tasks even appear on a task factor, and few can reach to higher level work.

JOB TITLES AND CURRICULA

The curriculum data collected from the educators with respect to the tasks of the pilot test provide some insights with respect to training gaps and patterns.

Physicians

Specific training for the Radiologists' tasks does not appear in the medical school program. This training is apparently obtained later as a specialty. This may be the reason why the Radiologist is a physician first and a specialist second, but it may not be the most sensible way to handle the specialty, which is in short supply.

For the other three physicians' titles there is the impression that diagnostics, lab work, and some treatments are covered at medical school, with the pediatric patient covered along with the older patient.

On the other hand, many treatments such as wart removal, emergency care, bone marrow puncture, and the evaluation of radiographs and EKG's -- all clearly clinical in nature -- are not fully covered by medical school. This may reflect the fact that medical schools, even though they are changing, still start with the theoretical and move later, in internship and residency, to the clinical. It may also be that diagnostic tasks were too glibly given A ratings in the questionnaire and are also not fully covered.

Most of the Nurse Practitioner's tasks are considered to have been covered in prior RN training; many are also covered by the medical school. The tasks that distinguish the Nurse Practitioner from the Nurse are tasks 84 (the pelvic), 86 (the pre-natal exam), 88 (identifying abnormal conditions in the pediatric patient), 100 (administering the Denver Developmental Screening Test), and 120 (planning and writing lectures, and evaluating subordinates). The Center trains completely for all but task 120, for which it does partial training. The Center trains the Nurse Practitioner in other tasks as well, but they are also found in Diploma School or BA nursing programs.

Four of the LPN tasks were not accounted for by the LPN program, although they are apparently covered in the training for other titles. These include applying and assessing the results of the TB tine test, (tasks 139 and 94), inoculating against smallpox, (task 152), and providing introductory information on contraceptive techniques (task 202). Such discrepancies may indicate that, even with licensure restrictions, the clinical content of curricula can vary and still not cover all needs.

A very interesting pattern emerged with respect to the Family Health Worker and the Unit and EKG Medical Assistants. It may be that the person responding for the training department understated the coverage, or that task identification as reflected in the task names used in the questionnaire overstated the task content, but not all the tasks identified for the titles are rated with an A (all or most is covered by program) by the respondent for the Center's training program.

In particular, the Family Health Worker's routine pre-natal (248) and post-partum (249) examinations are not accounted for. For the others, the tasks rated B (a significant amount is covered) may have resulted from the task names being merged with similar tasks and therefore being somewhat inflated in the questionnaire. Other tasks, such as those done in the home, the cooking, bathing, feeding, etc., may be assumed to already be in the grasp of the performer. With respect to the two tasks mentioned above, it may be that these tasks are taught informally. Task 248 is at Level 4, as mentioned earlier; further inquiry here seems warranted.

It was found that all of the X-ray Technician tasks in the questionnaire were fully covered by the program questioned, as well as those of the Dark Room Aide. It is a mystery at present where the Dark Room Aide at the Center learns his tasks, since there is no formal training for him. Given the fact that all the tasks are at Level 1, there is the likelihood that simple orientation on the job is sufficient.

GROSS EVIDENCE OF CURRICULUM OVERLAP

The data collected with the use of the instruments described in Chapter 2 and Appendixes B.1 and B.2 indicate to what extent the educators in the accredited institution or program implicitly acknowledge the possibility of overlap with lower-level programs or the training at the Center. Any rating of 3 or higher on the Curriculum Significance Rating Instrument would warrant following up with a further examination to determine whether the curriculum being taught at one level dealing with task content is different or the same as that taught at the other. The results reported below are not proof that one-to-one overlap exists, since it is possible that one program teaches task content as a series of procedures while another teaches the content in a more transferable, theoretical, or conceptual way. The results do indicate the areas that can fruitfully be explored for the possible creation of curriculum ladders using advanced standing from one to the other to shorten training time.

Figure 44 is divided into two parts. The first left-hand column of Part I shows the titles whose tasks were culled from the questionnaire (B.1) and accounted for by the programs. The "No. of Tasks" column on the left refers to the number of tasks of the title that were in the questionnaire. The program is listed next, and then the extent of coverage by the program (A and B, or A, B and C). The "No. of Tasks" column on the right indicates the number of tasks which the program acknowledged that it covered with respect to the job title involved. (The questionnaire did not indicate the titles, however.) The final column on the

Figure 44. PRELIMINARY EVIDENCE OF CURRICULUM OVERLAP FOR PILOT STUDY TASKS

I. JOB TITLE OF TASKS THAT ARE COVERED BY CREDENTIALLED PROGRAMS					
Job Title	No. of Tasks	Program Judging Significance	Tasks Already Rated As: ^a	No. of Tasks	Scale Value ^b
Medical Assistant and EKG	28	LPN	A, B or C	18	5
Medical Assistant and EKG	28	Diploma RN	A, B or C	26	3
Medical Assistant and EKG	28	AA-RN	A, B or C	20	1
Family Health Worker	44	LPN	A, B or C	37	5
Family Health Worker	44	Diploma RN	A, B or C	43	3
Family Health Worker	44	AA-RN	A, B or C	33	1
LPN: Unit and Emergency	42	Diploma RN	A, B or C	42	3
LPN: Unit and Emergency	42	AA-RN	A, B or C	38	5
LPN: Unit and Emergency	42	BA-RN	A, B or C	38	3
Nurse Practitioner (All)	35	Medical School	A, B or C	33	3
Nurse Practitioner (Those taught at Center)	8	Medical School	A or B	7	3
X-ray Technician and Lead X-ray Technician	11	Radiological Technician	A, B or C	11	3

II. TASKS TAUGHT IN MORE THAN ONE PROGRAM				
Program Indicating Tasks Completely Taught	Program Judging Significance	Tasks Already Rated As: ^a	No. of Tasks	Scale Value ^b
Diploma RN (A tasks)	BA-RN	A or B	70	3
Diploma RN (A tasks)	Medical School	A or B	43	3
AA-RN (A tasks)	BA-RN	A or B	39	3
AA-RN (A tasks)	Medical School	A or B	16	3
BA-RN (A tasks)	Medical School	A or B	49	3

^a Program person checked A, B or C. Letters refer to the following:

- A..Curriculum covers all or most of the specific procedures of the task or all or most of the subject matter applied in the performance of the task.
- B..Curriculum covers a significant amount of the procedures of the task or a significant amount of the subject matter applied in the performance of the task.
- C..Curriculum covers a small amount of the procedures of the task or a small amount of the subject matter applied in the performance of the task.

^b Program person indicated that curriculum content of tasks amount to:

- 5..Several courses or more in the program.
- 4..An entire course or major portions of several courses in the program.
- 3..A major portion of a course or minor portions of several courses in the program.
- 2..A minor portion of a course in the program.
- 1..A negligible portion of a course or several courses in the program.

right is the program representative's judgment about the degree to which the curriculum content represented by the tasks partakes of the program's total curriculum.

As can be seen, the LPN program claims that those of the tasks of the Family Health Worker and the Medical Assistant which are covered in its curricula amount to several courses or more in its program. This is of particular interest when it is remembered that the Family Health Worker job was not designed to replace the LPN, and that the Medical Assistant is subordinate to the LPN.

The evidence indicates the possibility for planning to have the LPN program agree to take employees of the Center with advanced standing. This is very important when it is remembered that the salary level for the Family Health Worker is above that of the LPN. Without licensure, the Family Health Worker currently has no place to go outside the Center at competitive salary levels. For the Medical Assistant there is the promise of a natural career ladder!

The next significant finding in Part I of Figure 44 is that the tasks of the LPN, as performed at the Center, and to the extent that they are covered by the Associate Degree Nursing program, amount to several courses or more in the program. Since the LPN comes from a credentialed program, here is evidence of something said by many: that the LPN training warrants advanced standing in RN programs. When one considers that the LPN tasks at the Center reflect only a portion of the LPN program content, the evidence seems very strong.

It should be noted that the Medical Assistant's and the Family Health Worker's task contents also are rated as a major portion of a course or minor portions of several courses in the Diploma RN program. The LPN program is similarly rated by the RN Diploma program and the RN Baccalaureate program.

The Nurse Practitioner's tasks were presented in total and also just those tasks that are accounted for by training at the Center. In either case, the medical school acknowledges that it covers most of these, and that they amount to a major portion of a course or minor portions of several courses in medical school. This is partly what leads us to suggest that nursing tasks such as the junior level diagnostics being done by the Nurse Practitioner are too diffuse and cross too wide a factor range to amount to an entire course or courses in medical school.

Another significant finding in Part I is that, although all the X-ray Technician's tasks are fully covered by the program related to it, the content they represent amounts to only a major portion of a course or minor portions or several courses in the program.

There is therefore little justification, at least at the Center, for the two years of associate degree level study now required for licensure for the title. It is clear that an earlier exit point is required which would permit the graduate to operate in X-ray tasks such as those at the Center with much less expenditure of time, money and educational resources.

Part II of Figure 44 was derived by taking all of the tasks listed as totally covered by a program (A) regardless of the title in which it appears at the Center, and asking a given program representative about those it covers completely (A), or to a significant extent (B). The framework is still that of the Center's tasks, but this approach permits inspection of program-to-program overlap. The possibility of various nursing program overlaps and overlap with medical school was the focus. The results indicate that each program regards its coverage of the lower level program's content to amount to a major portion of a course or minor portions of several courses. Even though 70 tasks are covered in common by the Diploma RN and BA-RN programs, the latter acknowledges no more overlap for the Diploma program than for the 39 tasks whose contents it shares with the BA-RN program. It gives both a rating of 3. Since it must be noted that these instruments were not identified by program name, the results cannot be attributed to bias.

RECOMMENDATIONS ON JOB AND CURRICULUM LADDERS

The recommendations listed here are fewer than those alluded to in the foregoing pages of this chapter. That is because the actual conditions in task assignments and curriculum contents are subject to review and refinement from the point of view of acceptable performance. Earlier suggestions will be reviewed by the institutions if they are judged insightful. The recommendations listed below are more obvious and clear-cut. They deal with the broad questions of the task content of

job titles, and job and curriculum sequences. The suggestions assume the relative wage relationships now in existence and the current structure of existing curricula.

1. The entry level at the Center with respect to the tasks covered should provide for greater diversification and should include Level 1 tasks now covered by the Dark Room Aide, Medical Assistant and some work of the EKG Technician, at the Dark Room Aide wage level.
2. The level of Medical Assistant should be made up of three sub-specialties. One should cover eye tests, EKG and tasks in the X-ray department (other than the X-ray tasks themselves). This should lead to release-time training in an X-ray Technician program. Meanwhile, efforts should be made to provide a one-year licensure structure for X-ray tasks such as those at the Center, with a year's credit for graduates usable in the current 2-year programs.

The second and third specialties should derive from the Medical Assistant's current clinical tasks at the Center, but should lead to release-time training in one of two areas. One would be for upgrading to Family Health Worker. The latter functions would benefit from the Medical Assistant's clinical experience at the Center where direct supervision is provided as well. The second upgrading avenue would take the Medical Assistant into an LPN program with advanced standing. Placement in LPN assignments would be accomplished on completion of the course work.

This proposal eliminates redundant training in Medical Assistant and Family Health Worker titles and in Medical Assistant and LPN titles.

3. The jobs of the LPN and the Family Health Worker should be made more interchangeable with respect to training and licensure or should be divided into an LPN Family Health Worker and a Social Service Family Health Worker with specialties in clinical for the one and in health education, counseling, and social service for the other.
4. It should be possible for the LPN and the Family Health Worker (clinical) to receive advanced standing in a nursing program and to then go on to whatever the Nurse Practitioner title eventually covers. It should also be possible for the Family Health Worker (social service) to receive advanced standing in comparable schools of social

work, clinical psychology, etc. These suggestions should be examined jointly with existing programs.

5. It should be possible for current Nurse Practitioner training to be planned in collaboration with medical schools so as to provide advanced standing for clinical specialties in female care or physical treatments yet to be assigned.
6. Elimination of overlap tasks and tasks at levels below current capabilities should be accomplished by a careful review of function. Tasks should be delegated downward and assured adequate performance at lower levels by providing the lower levels with adequately training and sufficient staffing. Creation of a multi-purpose entry level title should make this possible.

CHAPTER 6

JOB LADDER RECOMMENDATIONS

This chapter draws on the pilot test results, the goals of the Dr. Martin Luther King, Jr. Center, and the philosophical approach which underlies the creation of job and curriculum ladders, to present a set of idealized job ladders. The word "idealized" is not meant to suggest "unreal" or "impractical." Rather, the term is meant to convey, "that which would appear to be clearly rational, logical and socially beneficial if major institutional obstacles to implementation can be overcome."

The ladder suggestions will require major reorganization of jobs and educational programs if they are to be implemented. Some will require changes in current licensure practices. They are presented as a set of alternatives in the hope that the force of their general logic will provide an impetus for change. None of the specific details is as essential as the general approach which the ladders represent.

However, the ladders should prove to be generic. That is, the jobs described should be applicable in any ambulatory care setting, and especially in any health maintenance organization serving a community.

THE LADDERS AND CENTER GOALS AND OBJECTIVES

The philosophy and goals of the Dr. Martin Luther King, Jr. Health Center focus on the relationship between a family existing as a physical and social entity, and its health and social service needs. The Center interprets this to mean that the family requires continuity of attention, unity of service, and an emphasis on its own view of its problems. Stated another way, one might say that the Center is not made to serve the structure of the health and hospital industry, which is geared to curing specific pathologies (illness). It is more designed to deal with the concerns of the family, which stem from its developmental problems at the various stages of birth, childhood, adolescence, sex, marriage, parenthood, maturity, old age, and, eventually, dying.

This focus on serving a family's changing needs is relevant and in keeping with the concept that a Community Health Center must serve its community. However, implementation of such an approach requires revision of traditional services and health jobs, and the training of staff in a consistent way. This would set the family's developmental needs in the center of the stage, rather than the individual illnesses which are abnormalities related to the more enduring and continuous life processes. As a result, the health maintenance practitioner would be at the center of the stage, and the specialist would be set off as a critically important but supplemental performer.

Analysis of the HSMS pilot study tasks and the resulting task sequences provided an unexpected insight. It was that, though the goals

of the Center are clear, the structure of its jobs does not seem to fully mirror the goals. Though the role of the Team is apparent, its most essential aspects seem to be somehow truncated and out of focus.

We mean by this that the central function of attending to the developmental needs of the family and, particularly, emphasis on health maintenance, preventive medicine, and counseling on socially related problems is not fully at the heart of the operations, especially within the Team. The task factor containing the core of such functions was Factor Four. The reader will recall from Chapters 3 and 4 that, though Factor Four contained 60 tasks, many were teaching, monitoring, conference and committee tasks. There were no functions or tasks at Levels 5, 6 or 7; the Nurse Practitioner tasks did not show a truly independent role aside from the managerial one.

The job ladders to be described in this chapter show varying degrees of innovation. However, the one which reflects the greatest restructuring is the Factor Four ladder. It has been given the central role, and is an attempt to develop the potential functions already found in Factor Four for the Center.

It will be seen that the suggested job ladders are based on the pilot test task factor structures. Unlike the task sequences described in Chapters 3 and 4, however, they have been selectively culled and adapted to create more coherent job structures.

The jobs presented in this chapter draw primarily on tasks already found in the pilot test. Some of these tasks are modified to serve

what seems to be more comprehensive needs. However, there are also entire job levels and several tasks and functions that were not found in the pilot test. These have been added to fill needs that would seem to carry out the underlying goals and philosophy of the Center and of the Family Health Team, and also serve the secondary objective of conserving the scarce resources of the physician.

The job ladders are presented as idealized suggestions. Therefore, disagreements about the particular level or location of a given task, or the omission of a particular item, is not as relevant as the major thrust of the design. Modifications of these designs are infinitely possible.

OMISSIONS OF TASKS FROM PROPOSED LADDERS

A good deal of task overlap present in the actual jobs studied in the pilot test has been eliminated by creation of a rotating corps at the Aide level. This serves the purpose of providing a constant source of experienced manpower to cover absences in one functional area or another. By virtue of this experience in all major areas, the employees at the Aide level will be able to make choices about the specialty area in which they wish to rise. Management will be in a position to take account of especially gifted employees and encourage them. Finally, the rotation will permit job enrichment for functions that are now being carried out with deadly monotony, such as in the Dark Room.

Many of the administrative tasks of the pilot test involving supervision, monitoring, inventory and supply functions, and handling of

discipline and work schedules have been omitted. Such tasks are better developed by the institution to suit its needs. The fact that such tasks also require skills, knowledge and training should not, however, be forgotten; the HSMS task data already presented include such information.

Since many jobs in the Center were not studied, their tasks are not accounted for. In addition, the Level 3 laboratory tasks are not included in the ladders since they obviously should be part of a different set of ladders.

A good many of the tasks involving the formal or informal teaching of subordinates have been eliminated except in the ladder connected with Factor Four. This is because the degree of clinical teaching and formal instruction will be affected by the relationships between upgrading training in credentialed programs and clinical or formal training at the Center. The personnel carrying out teaching duties may vary depending on arrangements. It should be remembered, however, that teaching requires its own set of skills and knowledge, and that the elements of planning, and assessing a student's level of performance, educational needs, and progress are essential for successful teaching when acceptable work performance is the goal. These task elements are missing in many of the Center's current teaching tasks, and this situation may warrant remedy in the future.

A number of the medical examination tasks now found in the Nurse Practitioner's and the Family Health Worker's current jobs have been modified or eliminated. The reasoning is that, aside from the screening which can be provided by extremely well trained staff, the multiple-staged ex-

aminations are redundant. The Family Health Worker spots a problem and tells the Nurse Practitioner about it; who then reexamines and tells the physician about it; who then redoes the whole examination. This seems to be wasteful of manpower resources and does not really save physician time. Such combinations of tasks probably do not promote Team spirit either, since, when there is a weak link in a chain, the tendency is to by-pass it and close the circle without it. The ladders proposed here are designed to provide differentiated services at each level, most of which are uniquely provided at that level. There is some examination and screening at levels below Level 6, but it is kept to a minimum below Level 4, and is laterally expanded in scope and function at Level 4 so that new functions can be accomplished at that level.

The current tasks of the physician titles at the Center are not represented in the ladders per se. However, in the Figure 45 graphic summary of the ladder relationships (to be presented later in this chapter) the titles appear with their diagnostic and prescription functions. The intent of the ladders is to conserve physician manpower by reassigning delegatable tasks, providing specialists for many of the treatment tasks, and by concentrating the physician's role on the area of true professionalism. Therefore, it is assumed that for each of the physicians the following generic tasks are present:

1. Surgery and post-professional treatment and therapy specialties (where applicable).
2. Diagnostic and prescription of treatment according to specialty.

3. Reassessment of whether to proceed with prescribed course of treatment.
4. Assessment of urgency for follow-up on no-show patients.
5. Review and judgment of letters to institutions describing patient's condition, that are drafted by subordinates.

The Center staff have a number of tasks which involve participation in Team and/or Unit conferences and participation on committees. These tasks really reflect the knowledge and experience of the performer's other tasks. They have not been shown in the ladders. It should be noted, however, that responsibility for calling conferences on behalf of patient needs now rests in the job ladder connected with Factor Four, and is at Level 5. Team conferences are not necessarily the best way to develop team spirit. Since it was not evident from the pilot test that the conference results were a major basis for later task actions, these conferences are now placed under the jurisdiction of the job ladder responsible for coordination and general health maintenance for use only when problem solving requires them.

BENEFITS OF LADDERS

Although recent popular interest in career mobility reflects the social pressures among large numbers of the poor who demand the right to rise to meaningful and economically acceptable levels of achievement, the job ladders presented here serve equally significant purposes which make their implementation essential.

The most obvious function of job ladders, as alluded to at the outset, is to relieve shortages in upper level staff, and shortages in educational resources. The proposals presented in this chapter accomplish this objective. The task analysis has also made it possible to conceive of several other equally valid reasons to prefer the upgrading of many employees to the exclusive employment of new people at each level.

It is now apparent how important some of the HSMS skills are to some of the task functions, particularly in the area of physical treatment and care, where Consequences of Error for Humans and Object Manipulation are very much involved. This suggests that the gradual rise in level of skill, responsibility, and knowledge which is reinforced and tested in actual work practice may result in better, more successful performance at the upper levels than is now the case with students arriving with purely educational experiences and without the mutually reinforcing benefits of education and practice learned in work. The fact that clinical training is part of approved programs in health care suggests the truth of this. However, the experience of the job itself, in connection with release-time training for the next higher level, may be a beneficial source of clinical practice. Especially in the area of physical treatments such as the use of introductory procedures, the long period without practice, inevitable when the student embarks on the long route from high school graduation to internship, seems less than appropriate.

In addition to the benefits from practice in actual physical performances, job ladders provide benefits to the patient in the form of

consistent approach and comprehensive awareness. The patient is frustrated by bureaucratic divisions and fragmented services. Much of this comes from the extent to which professionals and sub-professionals work at cross purposes, with different goals, and from the extent to which the elements essential to the service are lost in the cracks between job titles.

The benefits of career ladders must be seen to include the fact that employees share and continually maintain an orientation to the goals of the institution as they rise. There is no danger that, at the top, they will consider themselves separate or independent of the institutions' goals or unrelated to them. Having known the details of functioning at one level, the performer is better able to relate to those details at the next level. This includes knowing what goes wrong at that level -- in a way outsiders can never know -- and compensating for this.

With respect to the Family Health Team, the marked mobility and, therefore, transience of professionals can be compensated for by the continuity of individuals who will rise in relation to services and will maintain links with the family. The goal of continuity of attention is thereby promoted as a bi-product of career ladders.

Another benefit of the ladders is that, unlike the creation of junior diagnostic tasks which are too diffuse and shallow in their curriculum content to warrant advanced standing in professional schools

such as medical schools, the specialties in the ladders can provide enough educational depth in a concentrated area to warrant crediting the educational investment for advanced standing. As the ladders are now proposed there would be a major block of curricula at Levels 4 or 5 which would be designed to provide advanced standing in medical school or another relevant professional school.

Finally, the nature of the ladders is such that current female employees can rise to levels in some specialties not yet open to them, while, in the future, there will be little need or value in attaching sex images to the ladders at all.

CURRICULUM LADDERS

The ultimate explanation for redundant educational curricula in the field of health manpower education is the fact that each level is designed to be self contained and terminal. In addition, as pressures arose to differentiate the fragmented titles, there was the need to stress that there are differences rather than overlap in curricula.

What is being proposed in this chapter is the joint planning (or at least conferring) of educators in programs above and below a given occupational program's level. They would ascertain the appropriate time to introduce certain subject matter, and at what level, in order to have the most benefit from former training, to fill current needs, and to allow for future needs.

Chapter 4 presented the prototype designs for the use of HSMS task data to identify the skill and knowledge curriculum contents for Factors at given levels, and for planning the movement from one sequence to another. The precise content of those designs in the Figures presented reflect the specific tasks of the sequences involved. They reflect task data which were not thoroughly reviewed. The reader should note that the idealized ladders presented in this chapter call for new functions, expanded tasks and omit many tasks. For these reasons the curriculum data in Chapter 4 are illustrative with respect to this chapter. They are sufficient to show what can be done regarding curriculum sequences. (Chapter 7 discusses the process of curriculum design.) In this chapter the Figures which present the idealized ladders each contain a column suggesting the types of educational links which would be desirable and some comments on the emphasis in curriculum content.

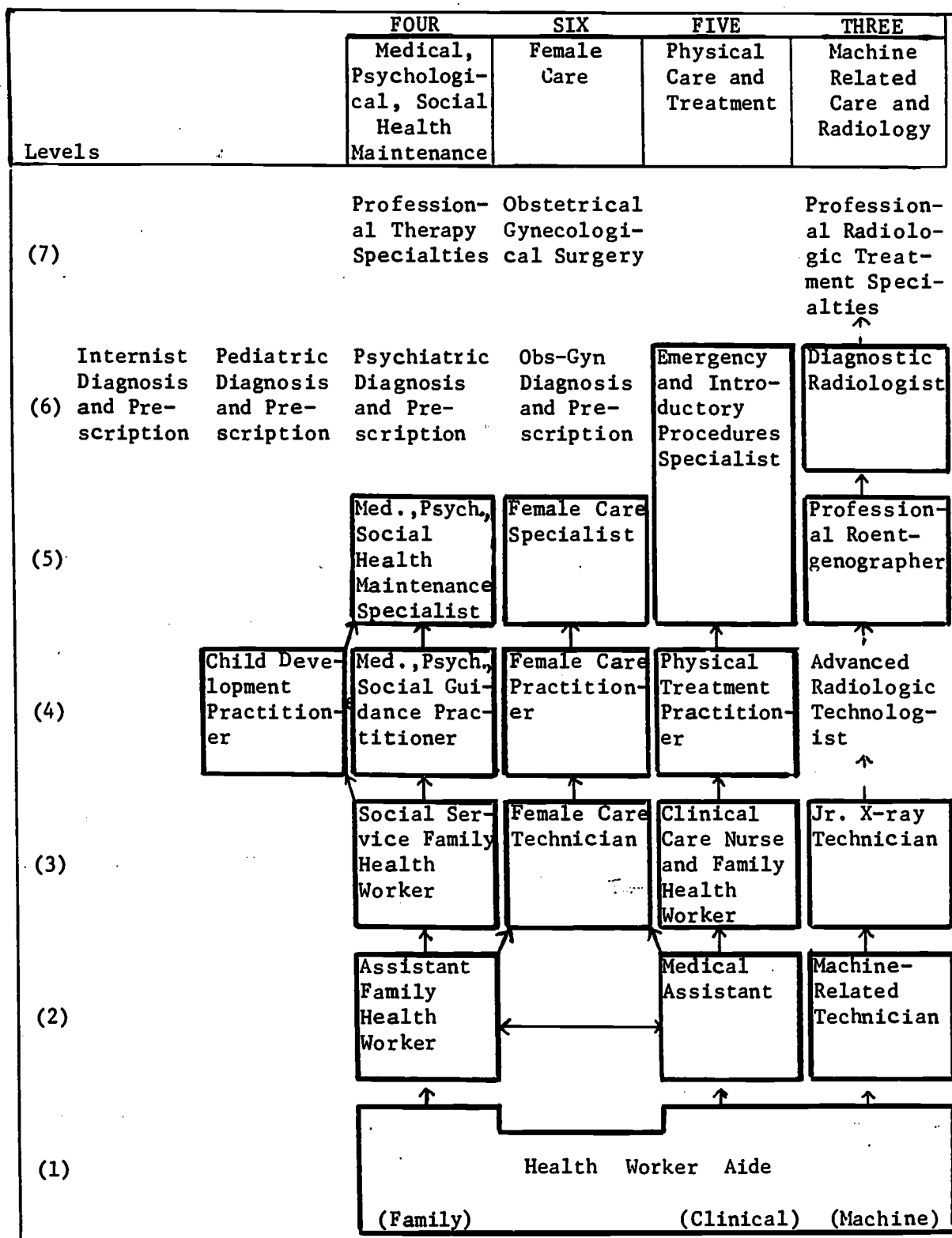
THE IDEALIZED LADDERS

Figure 45 presents graphically the essentials of the four basic ladders being proposed. Each box presents the name of a job function. Factors One and Two of Chapters 3 and 4 are represented only by the physician's functions in appropriate relationships to the other ladders. This acknowledges that there is still a major educational gap between Levels 5 and 6 in the factors and the essential diagnostic, prescription and post-professional surgery or treatment provided by the physician.

Factors (ladders) Three, Five and Six remain relatively the same, except that they are now more compatible with respect to job struc-

Figure 45.

GRAPHIC SUMMARY OF IDEALIZED JOB LADDERS FOR CENTER



tures than were the more polyglot compositions of the original task sequences. Factor Four has been transformed from a social service and counseling factor to a medical, psychological and social health maintenance ladder with a child development lateral option related to pediatrics at Level 4.

Levels 1 and 2 contain tasks that were formerly unassigned to factors. The job at Level 1 involves a set of three tours of duty, each containing different tasks, with training and experience in each tour of duty required for each performer. This provides a pool to cover absences at this level.

Lattice options are specifically acknowledged from Level 1 to 2 and between ladders Four and Five at Level 2. They occur between Four and Six and Five and Six from Level 2 to Level 3, from Level 3 to Level 4 within ladder Four, and within Level 4 of ladder Four.

The job ladders and lattice relationships are presented in Figures 46 to 49. For each level (job) the appropriate Figure presents a functional name and a description of the functions and/or abbreviated names of the tasks. Next, there is a column containing the code numbers of the pilot test tasks that are to be covered by the job, or covered but somewhat modified. (Where one or more tasks have appeared to be very similar, the several numbers may appear, but the description will refer to the function only once.) The last column on the left contains references to curriculum content and/or linkages. The lattice relationships are generally referred to by way of footnotes in the Figures. At Level 1,

only the tasks of the tour of duty servicing the particular ladder are covered. Thus, the tasks covered by the Health Worker Aide are the summation of those mentioned in Figures 46, 47 and 48.

A Ladder in Medical, Psychological and Social Health Maintenance

The Factor Four Ladder (Figure 46) emphasizes the goals of the Center. The tasks in this ladder treat the family as a developmental entity, and the jobs service that entity by providing it with a source of information, counseling, therapy, education and coordination of services. At the highest level for the factor, Level 5, the performer is in a position to be sure that medical, psychological and social problems are seen as a whole, with the patient or family seen as a whole. The performer has special non-medical service functions and a professional responsibility for seeing to it that related medical services are appropriately interrelated. Patient advocacy at this level is meant to cover arguing and testimony to help get for the community of the patient the social services or legislation needed. This might cover issues such as rat control, provision of a day care center, the development of an outpatient program for the retarded, or a drug addiction program. It would be the responsibility of the performer to assemble and present the information needed to argue for the programs being advocated based on professional evaluation and judgment, and to work with the community to bring the arrived-at point of view to the appropriate level of government.

At Level 4 the counseling function has been deepened and broadened to cover more of the family's developmental needs. There would be

Figure 46. IDEALIZED JOB LADDER FOR CENTER BASED
ON FACTOR FOUR (Medical, Psychological and Social Health Maintenance)
p. 1 of 4

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
Level 5: <u>Medical-Psychological-Social Health Maintenance Specialist</u> <ul style="list-style-type: none"> - Professional level psychotherapy. - Social service guidance and counseling. - Special services for retardation, chronic care, geriatrics, addiction, rehabilitation, etc. - Professional level patient advocacy vis a vis public agencies and social policy. - Leading, initiating, conferences to develop policy re patients' needs (general and specific by case). - Train subordinates informally; train trainees at all levels in how to train subordinates. 	None from pilot test; modification of 25	Linked with professional therapy specialties above and nursing specialty training below.
Level 4: <u>Medical-Psychological-Social Guidance Practitioner</u> <ul style="list-style-type: none"> - Pragmatic counseling on personal problems. - Counseling on sex, contraception, birth, abortion, venereal disease. - Counseling on social problems, problems of adolescence, parenthood, age, dying. - Post hospital care and/or multi agency coordination, follow-up. - Health education for patients in chronic or special care procedures for daily living. - Coordination of the delivery of all services and of Team's servicing of family. - Deciding, advising and arranging referrals to agencies and services. - Information function for questions on care, where to go, etc., discussion on problems. - Semi-professional patient advocacy. - Train subordinates informally. 	90, 114, 101, 102, 115, 110, 26	Nursing specialty in behavioral sciences, plus development, epidemiology, preventive medicine. Linked with Level 5, above, and social service training below.
or		
Level 4: <u>Child Development Practitioner</u> <ul style="list-style-type: none"> - Coordination and planning of health maintenance programs for children, including immunization. - Examine and evaluate medical and psychological development; conferring with MD on abnormalities. - Counseling parents on problems of child rearing and specific childhood conditions. 	88	Nursing specialty in child development combining medical and psychological aspects.

Figure 46. IDEALIZED JOB LADDER FOR CENTER
 BASED ON FACTOR FOUR
 (Medical, Psychological and Social Health Maintenance) (continued)
 p. 2 of 4

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
Level 3 ^a : <u>Social Service Family Health Worker</u> <ul style="list-style-type: none"> - Identification and discussion of family problems re. developmental stages. - Detailed, specific coordination of services; review and follow-up of provision of services. Schedule planning. - Filling in forms and letters summarizing patient's medical condition for approval of professionals. - Inspection of home for safety, violation of housing and health codes, maintenance of services, lead poisoning, etc. - Accompany patients to agencies. - Follow-up on and coordination of services, agencies, lab tests, results, appointments, continuity in social service programs. - Reinforce care, examine and review symptoms for chronic care patient, pre-natal, post-partum, neonate. - Reinforce diet, daily living care practices, birth control, medication, rehabilitation, procedures and care. - Answer questions on care or refer. - Make ethnic substitutes in diet, daily care procedures. - Discuss availability of social services including consumer protection. - Help with consumer economics and money management. - Arrange referrals and appointments for proper Team member including Medical Family Health Worker, professionals, and Assistant Family Health Worker services. - Taking intake information from new family, reviewing needs and problems, presenting scope of services available and role of entire Center complex. - Providing basic information on developmental problems, sex, contraception, abortion, venereal disease, sanitation, epidemiology, problems of aging, addiction. - Giving developmental screening tests. 	236, 127, 111, 219, 122, 252, 148, 249, modified 23, 203, 237, 245- 246, 226, 100, 207	Technician level training in medi- cal and psycholog- ical as- pects of growth and develop- ment with basic nur- sing and social service. Linked with spe- cialty a- bove and Center curriculum below.

^a Diagonal exit to Child Development Practitioner.

Figure 46. IDEALIZED JOB LADDER FOR CENTER
 BASED ON FACTOR FOUR
 (Medical, Psychological and Social Health Maintenance)
 p. 3 of 4

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
<p>Level 2^a: <u>Assistant Family Health Worker</u></p> <ul style="list-style-type: none"> - On orders, follow-up on no shows, check-up or assist in making appointments; decide on whether to provide transportation. - Providing homemaking services including food preparation according to diet needs, on orders. - Reinforcing instructions on medication, contraceptive devices, rehabilitation devices, diets; as per orders and directions. - Teaching daily living health practices for special conditions as per orders and directions. - Teaching health maintenance, sanitation and disease control practices to families and/or groups. - Making home visits to assess needs of patients discharged from hospital. - Checking on results of delayed reaction tests such as tine test for TB. - Checking charts for proper entry of all items, and results of visits and lab tests. 	<p>159, 240, 238, 202, 197, 228, 258, 221, 253, 94, 157, 108, 140, 116</p>	<p>Center training above core level. Linked to advanced standing option in LPN pro- gram (lat- eral).</p>
<p>Level 1^b: <u>Health Worker Aide</u></p> <ul style="list-style-type: none"> - Delivering medicine to patient and explaining how to take as ordered. - Taking partial history from patient on orders. - Teaching patient self exam and care of breasts. - Noticing and reporting relevant patient symptoms to Dr. - Finding out whether family that moved needs to stay with Family Health Team. - Providing orientation tour of facilities and procedures at Center. - Teaching how to bathe and diaper infant. - Teaching how to prepare infant formula as prescribed. 	<p>234, 259, 107, 138, 247, 204, 211, 215, 113, 216, 106, 225, 208, 108- 140, 155, 97, 196, 223, 75</p>	<p>Core cur- riculum at Center based on obligatory, rotating tour of duty in Level 1 tasks ser- ving Fac- tors Three, Four, and Five.</p>

^a Can choose to enter Factor Five or Six Ladder or go on in Four.

^b All Aides can choose to go on in Factors Three, Four or Five.

Figure 46. IDEALIZED JOB LADDER FOR CENTER
 BASED ON FACTOR FOUR
 (Medical, Psychological and Social Health Maintenance) (Continued)
 p. 4 of 4

General Functions and Level	Code Nos. Comments of Current on- Tasks Curricula
Level 1 ^a : <u>Health Worker Aide</u> (continued)	
<ul style="list-style-type: none"> - Giving general reassurance to any patient. - Teaching bottle feeding and burping to new mother. - Teaching patient postural drainage technique. - Checking patient's medicines and having old ones discarded. - Collecting stool specimen and taking to lab. - Teaching patient reagent tablet or dipstick urine test on orders. - Obtaining urine specimen; preparing for lab on orders. - Teaching or collecting specimen for pinworm test on orders. - Giving patient enema kit and instructions for use on orders. - Making empty bed if needed. - Translating conversations if performer knows patient's language. 	

^a All Aides can choose to go on in Factors Three, Four or Five.

a consequent broadening and deepening in the curriculum content required. At this level the major responsibility for planning and coordination would occur in terms of the actual details. The practitioner would coordinate the delivery of services including Team personnel's delivery of service -- rather than coordinate the members of the Team, per se.

There is a laterally related job in child development at Level 4. This is the combination of some of Level 4 in the old Factor Two (pediatrics) with Level 4 in Factor Four. The reason this is possible is that the expanded functions of Factor Four now require the Growth and Development, Psychopathology, Development and Growth of Behavioral Processes of the Individual, Epidemiology, Psychotherapy and Counseling, and Pharmacology required in Factor Two. The old task 88 is expanded so that the Practitioner can supply a fully rounded assessment of development, coordination of physical care (such as shots) and counseling for parents on child rearing problems. This job grows out of Factor Four and can lead back to the more general functions of the factor or to medical or psychological specialties in pediatrics or child psychology.

Level 3 is the first half of the two-person Family Health Worker partnership. The Social Service Family Health Worker does the day to day coordination of services. This job covers orientation and intake, and concentrates fully on the interpersonal relationship with the family and on simple health education. The clinical functions, now in the hands of the Medical Family Health Worker, can be minimized in the curriculum, leaving room for technical training in behavioral development, growth and de-

velopment, epidemiology, sanitation and preventive medicine. At this level the performer can choose to go on in the general factor or specialize in child development.

At Level 2, the Assistant Family Health Worker is carrying out specific, detailed tasks and is assigned the follow-up and reinforcement of prescribed health practices and health education. The job is truly to assist the Social Service Family Health Worker in servicing the family. Introductory training in many of the factor's subjects would take place at this level, including some clinical practice. At this level the performer has some experience and can choose to go on with Factor Four or specialize on the medical side (Factor Five), or emphasize female care (Factor Six).

The Level 1 tasks serving Factor Four take the performer back and forth from the Center to the home, serving the health education and clinical needs of the family and Team as well as the social service needs. Center curriculum at this level should place the training in a context so that the performer can see where the subject matter leads in terms of the Center functions and future curriculum sequences. The "whys" of procedures should be stressed in preparation for later training, and great emphasis should be placed on developing the Human Interaction, Implicative, Decision Making and Error Consequences skills.

A Ladder in Physical Care and Treatment

The job ladder based on Factor Five (Figure 47) is founded on the proposition that physical treatment tasks require constant practice

Figure 47.

IDEALIZED JOB LADDER FOR CENTER
BASED ON FACTOR FIVE
(Physical Care and Treatment)
p. 1 of 5

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
Levels 5 and 6^a: <u>Emergency and Introductory Procedures Specialist</u> <ul style="list-style-type: none"> - Providing emergency life support care for cardiac arrest, poisoning, loss of breathing, hemorrhage, drug overdose, shock, traumas. Also, emergency first aid. - Treatment of injuries on prescription by MD. - Spinal tap (pediatric) on prescription by MD. - Bone Marrow tap (pediatric) on prescription by MD. - Amniocentesis (taking sample of amniotic fluid) from pregnant patient on prescription by MD. - Spinal tap (adult) on prescription by MD. - Suturing lacerations on prescription by MD or own examination. - Cauterization of vagina, cervical biopsy, removal of vaginal polyps, insertion of IUD, correction of retroflexed uterus with pessary, other vaginal care on prescription by MD. - Drawing blood from vein of pediatric patient on MD prescription. - Bone marrow tap (adult) on prescription by MD. - Evaluate whether there are contraindications for physical treatment. 	28, 37, 60, 62, 22, 50, 30, 32, 41, 61, 91, 51, 87.	Medical school and clinical training, with special li- cense and advanced standing for MD. Linked be- low to Physical Treatment nursing specialty. At Level 5 the per- former is supervised by MD.
Level 4: <u>Physical Treatment Practitioner</u> <ul style="list-style-type: none"> - Removing a wart from non-child patient on MD prescription. - Determining if suspect EKG reading is true or artifact (if Level 6 person available for emergency). - Determining allergy to dye for IVP X-rays (if Level 6 person available in emergency). - Incising and draining abscess or boil on MD prescription. - Removing large blunt object from pharynx on MD prescription. 	12, 17, 19, 34, 59, 33, 250, 13, 5, 105, 171.	Nursing clinical specialty with coop- eration of medical school. Links to Levels 5 and 6 a- bove and nursing program below.

^a May choose to train to enter Factor One at Level 5 or Factor Six at Level 5.

Figure 47.

IDEALIZED JOB LADDER FOR CENTER
 BASED ON FACTOR FIVE
 (Physical Care and Treatment) (continued)
 p. 2 of 5

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
Level 4: <u>Physical Treatment Practitioner (continued)</u>		
<ul style="list-style-type: none"> - Removing sutures on orders or own assessment. - Conducting routine neonate examination. - Setting up and teaching IV apparatus for non-child patient. - Instillation portion of hysterosalpyngography. - Irrigating, dressing, bandaging wound or burn as judged appropriate to condition. - Assessing urgency of need for MD to see emergency patient. 		
Level 3^a: <u>Clinical Care Nurse and Family Health Worker</u>		
<ul style="list-style-type: none"> - Removing foreign object from eye and/or ear. - Drawing blood from non-child patient's vein. - Teaching diabetic patient how to take medication or insulin injection. - Cleaning, dressing, bandaging wounds as ordered. - Assisting in emergency by preparing materials. - Preparing and administering subcutaneous or intramuscular injections on orders and explaining. - Helping any patient in walking. - Conducting routine exam of any patient over six months of age by taking vital signs and noting abnormalities. - Removing foreign object from patient's ear. - Irrigating and changing indwelling catheter. - Obtaining urine specimen from female using catheter. - Removing thread stitches on orders. - Teaching infant's formula, feeding, bathing, diapering to mother. 	38, 18, 112, 156, 218, 192, 167, 133, 251, 243, 57, 117, 143, 92, 119, 232, 118, 58, 104, 109, 191.	LPN or Nurse spe- cialty in clinical care, com- bined, for Family Health Worker, with orienta- tion at Center. Links with clinical nurse spe- cialty a- bove, and Medical Assistant below.

^a Option to train to go on to Level 4 in Factor Six.

Figure 47.

IDEALIZED JOB LADDER FOR CENTER
BASED ON FACTOR FIVE
(Physical Care and Treatment) (continued)
p. 3 of 5

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
Level 3: Clinical Care Nurse and Family Health Worker (continued)		
- Teaching patient irrigation of catheter.		
- Preparing patient with foreign body in eye by applying dye strip.		
- Administering common range of motion exercise on orders.		
- Teaching irrigation, change, care of colostomy.		
- Applying splint on orders.		
Level 2^a: Medical Assistant		
- Preparing intravenous bottle.	179, 229,	Coopera-
- Changing colostomy bag, irrigating on orders.	152, 185,	tion in
- Administering prepacked smallpox vaccine on orders.	210, 215,	training
- Assisting in administration of oxygen on orders.	206, 163,	between
- Bathing any adult bedridden patient.	224, 173,	Center and
- Teaching how to prepare infant formula.	244, 199,	LPN or AA
- Examining, treating bedridden patient for bed sores.	93, 200,	program.
- Preparing materials for special procedures.	201, 162,	Advanced
- Deciding whether to make an occupied bed and making.	142, 95,	standing
- Preparing patient for suturing.	96, 205,	on comple-
- Teaching patient temperature taking and care of thermometer.	190, 194,	tion in
- Preparing patient and taking vital signs before Dr.'s examination.	233, 177,	LPN and/or
- Applying prepackaged tine test for TB.	188, 209,	AA pro-
- Applying hot or cold compress, cold towels, ice bath, or cold water or alcohol rub, or both, on Dr.'s orders.	212, 195,	gram.
- Irrigating ear with solution as ordered.	187, 189,	Linked be-
- Administering rectal medication as ordered.	256, 161,	low with
- Carrying out tablet or dipstick urine test.	170, 198,	Center
	139, 172,	core cur-
	141, 98.	riculum.

^a Can choose to enter Factor Four or Six ladder or go on in Five.

Figure 47.

IDEALIZED JOB LADDER FOR CENTER
 BASED ON FACTOR FIVE
 (Physical Care and Treatment) (continued)
 p. 4 of 5

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
Level 2: <u>Medical Assistant (continued)</u>		
<ul style="list-style-type: none"> - Taking throat culture specimen; labeling. - Giving patient enema on doctor's orders. - Assisting patient to or from wheelchair. - Administering eye or ear drops on orders. - Teaching pt. how to irrigate eye with water. - Treating patient for ringworm on Dr.'s orders. - Assisting any non-infant patient to bathe, shower, dress. - Applying eye patch on orders. - Giving oral medication to patient; explaining effects, on orders. - Treating patient for lice on orders by shampooing. - Weighing and measuring patient and recording. - Assessing results of tine test. - Taking stool specimen and testing for blood using tablet. - Obtaining clean catch urine specimen. 		
Level 1^a: <u>Health Worker Aide</u>		
<ul style="list-style-type: none"> - Preparing food, feeding non-infant patient. - Treating baby for cradle cap. - Assembling suture materials as ordered. - Preparing hypodermic on orders. - Preparing tray for drawing blood; writing labels. - Preparing tray for nasal packing. - Assisting Dr. in medical exam with materials. - Preparing patient for pelvic exam; preparing slides. - Preparing for bone marrow puncture on orders. - Inducing vomiting in patient on Dr.'s orders with medication. - Preparing patient for gastric lavage and assisting. 	217, 213, 166, 260, 180, 181, 153, 193, 183, 182, 214, 147, 160, 75, 235, 150, 136, 130, 151, 176, 266, 230, 137, 168, 169, 184.	Core cur- ricula at Center based on obligatory rotating tour of duty in Level 1 tasks ser- ving Fac- tors Three Four and Five.

^a All Aides can choose to go on in Factors Three, Four or Five.

Figure 47.

IDEALIZED JOB LADDER FOR CENTER
BASED ON FACTOR FIVE
(Physical Care and Treatment) (continued)
p. 5 of 5

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
<p>Level 1^a: <u>Health Worker Aide</u> (continued)</p> <ul style="list-style-type: none"> - Shampooing patient with itchy scalp. - Escorting patient within institution. - Translating conversation if performer speaks language of patient. - Checking medications for expiration dates. - Judging what supplies are needed and requesting. - Checking and storing delivered supplies. - Obtaining pharmaceuticals as ordered and storing. - Preparing treatment room by cleaning up and stocking supplies. - Removing sterilized equipment from autoclave; storing. - Locking-unlocking narcotic supplies. - Preparing materials for use in a catheter irrigation. - Delivering cultures and specimens to incubator or lab. - Taking throat cultures to Dr. from incubator, for assessment and collecting Dr.'s assessments of throat cultures. 		

^a All Aides can choose to go on in Factors Three, Four or Five.

because they are heavily reliant on skills such as Object Manipulation, Consequences of Error to Humans, and Figural Skills. The implication of this proposition is that a given task done infrequently by a physician may not be carried out as well as when the same task is performed frequently by a specialist.

Thus, the tasks at Levels 4, 5 and 6 include many that are currently being done by physicians. The education prescribed for these levels will cover the same education needed by physicians to do them, but will not require all the additional knowledge required for diagnostics. The reader will notice that, in every case, it is still the physician who prescribes the treatment. The new performers will be trained to know about contraindications and what to do. Since the ladder also includes emergency care and first aid, the performer will also be able to handle any contingencies which may arise.

The reader may notice that this ladder is not unlike some of the suggestions for "physician assistant." This title has been consciously avoided, since it is not the physician, per se, who is being served, but the patient; and it is the institution which determines the functions and educational preparation. The performers are members of an interdependent staff, and are not simply "assisting."

Level 5 provides for supervision in the tasks of Level 6, so that clinical practice in the advanced tasks has a period similar to that of internship or residency. The major difference is that the performers at Level 5 have already had the practice and clinical experience in the related, lower level tasks of Level 4.

The Level 3 job is the second half of the Family Health Worker partnership. The Clinical Care Nurse and Family Health Worker coordinates with the Social Service Family Health Worker, but is also involved in service at the Center, perhaps on a rotating basis. This keeps the skills sharpened, provides for some continuity of clinical attention for the patient, and gives the performer an awareness of home problems in relation to clinical services.

At Level 2 the Medical Assistant can shift from the home to the Center, providing continuity of clinical attention and allowing the performer to make a choice in continuing up into the ladders for Factors Four, Five or Six.

The Level 1 tasks serving Factor Five are primarily carried out at the Center, but the tour of duty in the other factors and the core curriculum will prepare the performer for the home experience.

The jobs above Level 3 in this ladder are contingent on the ability of the cooperating educational institutions to build compatible curriculum ladders or to adapt current programs. The objective is that, by Levels 5 and 6, the specialist in this ladder should have a good deal of advanced standing in a medical school.

A Ladder in Machine Related Care and Radiology

The ladder based on Factor Three is shown in Figure 48. Unlike the other three ladders, it cannot be climbed unless the performer is

Figure 48.

IDEALIZED JOB LADDER FOR CENTER
BASED ON FACTOR THREE
(Machine Related Care and Radiology)
p. 1 of 3

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
Level 6: <u>Diagnostic Radiologist</u> - Reading, assessing X-rays and fluoroscope film and making recommendations. - Answering MD questions about radiographs.	6, 8	Leads to professional Radiologist treatments. Possibility that MD could receive diagnostic training. Linked to professional roentgenography below.
Level 5: <u>Center-Type Professional Roentgenographer</u> - Fluoroscopy of lower intestinal tract. - Fluoroscopy of upper GI tract. - Fluoroscopy portion of hysterosalpyngography. - Assessing performance and output of X-ray workers. - Reading and interpreting "stat" X-rays on request.	1, 3, 4, 7, 20.	Professional level program in conjunction with medical school subjects, and building on advanced radiologic technology.
Level 4: <u>Hospital-Based Advanced Radiologic Technologist</u> - Advanced or specialized X-ray taking. - Therapeutic uses of radiologic technology at technician level.		Advanced radiologic technology (2 years). Linked to Level 5 above and first half of program below.

Figure 48.

IDEALIZED JOB LADDER FOR CENTER
 BASED ON FACTOR THREE
 (Machine Related Care and Radiology) (continued)
 p. 2 of 3

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
Level 3: <u>Center-Based, Jr. X-ray Technician</u> <ul style="list-style-type: none"> - Preparing patient and barium drink for fluoroscopy and taking upper GI X-rays. - Taking lower GI series X-rays and scout film. - Taking X-rays with vertical or table X-ray machine. - Taking IVP X-rays after allergy test. - Assessing quality of radiographs. 	68, 67, 65, 66, 81.	First half of radio- logic technology (1 year)
Level 2: <u>Machine Related Technician</u> <ul style="list-style-type: none"> - Reassuring patient about X-ray or EKG procedures. - Re-explaining pre-X-ray home procedures to pt. - Preparing patient and taking electrocardiogram. - Demonstrating and explaining EKG. - Giving vision screening tests (Keystone and Snellin). - Calling repair company re X-ray or EKG equipment. - Preparing barium enema. - Checking and caring for equipment. - Deciding if EKG reading looks suspicious and informing appropriate person. 	73, 74, 262, 270, 257, 99, 82, 79, 132, 271.	Special Center training in proce- dures with emphasis on connec- tion be- tween pa- thological conditions, symptom manifesta- tions, and handling.
Level 1^a: <u>Health Worker Aide</u> <ul style="list-style-type: none"> - Developing radiographs using hand developer. - Preparing radiograph packet for interpretation. - Cutting and mounting an EKG strip. - Checking level of developer and fixer solution. - Preparing materials for IVP-dye allergy test. - Readyng treatment room by wiping up and cleaning. - Preparing equipment for autoclave by washing and wrapping. 	71 78, 263, 272, 80, 135, 145, 175, 178, 149, 174, 70, 2, 268, 72, 269, 267, 223, 69, 222, 144, 146,	Core cur- ricula at Center based on obligatory rotating tour of duty in Level 1 tasks ser- ving Fac-

^a All Aides can choose to go on in Factors Three, Four or Five.

Figure 48.

IDEALIZED JOB LADDER FOR CENTER
BASED ON FACTOR THREE
(Machine Related Care and Radiology) (continued)
p. 3 of 3

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
<p>Level 1^a: <u>Health Worker Aide (continued)</u></p> <ul style="list-style-type: none"> - Sterilizing equipment in hot water sterilizer by washing, placing, wrapping, and storing when removed. - Preparing hand developing tank for X-ray film. - Loading or unloading film in fluoroscopy machine. - Checking EKG paper and putting in new roll. - Loading X-ray film cassettes. - Deciding whether repair is needed for EKG machine. - Routine cleaning and dusting of machines. - Using automatic developer for X-ray and spot films. - Duplicating forms on duplicating machine. - Preparing hot water sterilizer for use. - Setting autoclave. - Turning on X-ray film developing machine. 	273.	tors Three, Four, and Five.

^a All Aides can choose to go on in Factors Three, Four or Five.

allowed to move into the hospital setting. This is because the tasks at Level 4 and Level 7 would not normally be found at a Center.

The assumption that the Radiologist is a physician with additional training is somewhat in question in the ladder. It is suggested that a direct route, with a major portion of medical school training, may be sufficient. The tasks represented in the jobs up to and including Level 5 do not appear to need all the training now given the Radiologist.

It is suggested that Level 4 tasks at the hospital may require the currently mandatory (in New York) two years of training and state licensure. However, there should be an exit point after 6 months or a year for the Level 3 job, and these two portions of the program should be additive, so that the performer at Level 2 can go on to Level 3 by taking the additional training.

The Level 2 tasks include introducing the patient to X-ray procedures and work in EKG and eye tests. Such training is now provided by institutions themselves or by special programs. To cut down the time needed in Level 3 training, the Center's curriculum should be designed with the Level 3 training in mind. Curricula such as Topographic and Regional Anatomy, Pathology, and Handling and Transportation of the Sick or Wounded could be carried over to Level 3 as was indicated in Chapter 4.

The Level 1 tasks represent one of the three tours of duty for the Health Worker Aide and encompass what is now the job of the Dark Room Aide and many of the lower level machinery-related functions of the LPN,

Medical Assistant and X-ray Technician. This provides the variety needed as well as an orientation to many functions which the entry level worker might otherwise miss.

A Ladder in Female Care

The rationale for the Female Care ladder (Figure 49) is not simply that the tasks happened to cluster. A more important consideration has emerged as a result of the factoring. The reader may have noted that the knowledge categories covered by the factor, and the tasks that clustered there, go beyond the usual Obstetrical-Gynecological tasks, but exclude the clearly physician level diagnosis and surgery. What is included in the ladder and excluded from the usual function of the Obstetrician-Gynecologist is the deeply sensitive counseling and guidance that women need in dealing with their bodily functions during puberty, sexual activity, the fertile period, pregnancy, post-partum, motherhood, menopause, and the aging process.

A woman's changing needs are not just a straightforward choice of a contraceptive, diagnosis of vaginal discharge, venereal disease, choice of abortion or birth, and correction of physical abnormalities. A woman needs to be able to talk about her changing functions in relation to her wants and desires, and must be able to understand herself and the full meaning of the choices open to her. She needs to know what choices are open to her. All these needs are more urgent today, coming at a time when there is a growing insistence from women that they have a right to control their own bodies.

Figure 49.

IDEALIZED JOB LADDER FOR CENTER
BASED ON FACTOR SIX
(Female Care)
p. 1 of 2

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
Level 5: <u>Female Care Specialist</u> <ul style="list-style-type: none"> - Normal delivery of baby, provided Dr. is available to handle complications. - Providing fertility assistance, except for andrometric biopsy. - Prenatal examination of patient; evaluating condition; prescribing standardized routine care or referral; conferring with MD on abnormalities. - Post partum examination of patient; evaluating condition; prescribing standardized routine care or referral; conferring with MD on abnormalities. - Neonate examination; evaluating condition; prescribing standardized routine care or referral; conferring with MD on abnormalities. - On prescription of Dr., cauterizing, removing polyps, inserting IUD, providing other supervised vaginal care. 	Modified 43, modified 42, 86, 85, 89, modified 41, 248, 249.	Medical school and clinical training, with special license and advanced standing in MD program. Linked below to Female Care nursing specialty.
Level 4: <u>Female Care Practitioner</u> <ul style="list-style-type: none"> - Counseling on sex, contraception, pregnancy, VD, abortion, female disorders. - Instructing in techniques of sex, contraception, female care, after-care in pregnancy, abortion, surgery. - Giving basic education in sex, adolescence, contraception, menopause, VD, abortion, pregnancy, growth and development of fetus and neonate. - Pap and pelvic examination of adult female patient including specimens; evaluating condition; conferring with MD on abnormalities. - Instillation portion of hysterosalpyngography. 	101, 84, 5, 11, 202, 226.	RN specialty to link with specialty above and with adapted LPN training below.

Figure 49.

IDEALIZED JOB LADDER FOR CENTER
 BASED ON FACTOR SIX
 (Female Care) (continued)
 p. 2 of 2

General Functions and Level	Code Nos. of Current Tasks	Comments on Curricula
Level 3 ^a : <u>Female Care Technician</u>	258, 103, 51, 16,	Adaptation of LPN
- Reinforcing patient in use of contraceptive.	143, 15,	training
- Measuring, fitting diaphragm for female patient.	117, 118, 107.	to build on Level 2
- Determining presence of monilia fungi on slide.		training
- Examining a slide for gonococci.		in Center
- Obtaining urine specimen from female using catheter.		for Fac- tor Four,
- Determining presence of trichomonas on slide.		or LPN
- Irrigating and changing indwelling catheter.		program
- Teaching irrigation of catheter in home.		for Factor
- Teaching patient self exam and care of breasts.		Five.

^a This level reached from Factors Four or Five from Level 2, with appropriate training provided.

This means that the Obstetrical-Gynecological functions are both too narrow for the patient's needs and too advanced for the non-physician. The job ladder for Factor Six provides for a three-level sequence in which non-surgical examination and treatments are combined with life-oriented counseling and education. The ladder builds on the base provided by Level 2 jobs in Factors Four or Five, and can go on to Obstetrics-Gynecology with advanced standing in medical school. Set in this framework, it makes it possible for women to rise in this area and to service patients with sympathetic understanding as well as technical skills and knowledge.

CHAPTER 7

POLICY IMPLICATIONS

Chapters 5 and 6 are specific with respect to their implications regarding job structures and curriculum design. However, some more broadly based questions still remain to be discussed. The first section of this chapter deals with conceptual issues regarding the functioning of the Family Health Team at the Center. The next section covers issues and concepts in the area of curriculum design, and the last section presents some comments on institutional change. The chapter ends with a note about the Health Services Mobility Study.

COMMENTS ON THE FAMILY HEALTH TEAM

The pilot test at the Dr. Martin Luther King, Jr. Center was stimulating, not just because of the excitement involved in testing the method; the Center itself generates interest because of its innovative methods and the dedication of its staff. Because we feel involved, this section is offered for whatever possible positive inputs it may make to the Center's own thinking about the role of the Family Health Team and some of the Center's functions. The ideas and impressions presented here are a by-product of the task analysis work and stem from the type of contact made possible during the research period at the Center.

It is interesting to note that the word "team" is not well defined in the dictionary. Its technical denotation is little more than the association of a number of persons or the harnessing of two or more

persons or animals to the same vehicle. "Teamwork," however, refers to work done by a number of associates all subordinating their personal prominence to the efficiency of the whole. It follows that there is no teamwork or team unless each member's function is necessary for the work; no team unless all performers necessary are included; and no teamwork unless the work to be done can be done by the team, and unless it is possible for personal prominence to be subordinated by virtue of the way in which the work is done.

The first concern which might be raised is with respect to the work objectives of the Team. If the goal is to coordinate the services provided, and if the services are to include the medical, psychological and social needs of the family, then the Team seems to be somewhat truncated as it is currently organized. As the discussion in Chapter 6 on the job ladder based on Factor Four indicated, the current composition of the Team and its included tasks seems to omit the types of jobs that would focus on the social-psychological life of the family, to which medical care is an adjunct.

It may be that the real issue is that there should be no artificial barriers separating the Mental Health Center and the Community Health Center. At the moment these are separate entities funded through separate Federal agencies. It may be that what is needed is a massive policy change which would make it possible for an entity such as the Center to truly provide comprehensive health maintenance and care in a combined operation.

If this is not the problem, and if the missing functions are indeed being carried out by other titles at the Center (such as psychiatrist, social worker or similar designations), then their absence from the Team would appear to be a serious omission.

A second concern which might be raised deals with the relationship of the Team to other functions at the Center. The reader may have noted that the ladders in Chapter 6 made it possible to move from work located in the family's home, to the Center, and back. But, beyond this, the question is raised that the family might be better served if the workers in the Unit were as intimately involved in participation with the Team as are current Team members. One would assume that continuity of attention is also desirable in connection with conditions which bring the patient to the Center for care. The jobs designed in Chapter 6 are more oriented towards joint participation in the Team.

A third concern lies in the relationship between the expressed desires and goals for the delivery of care and the practical expression of such concerns in job performance. There seems to be a belief that the orientation given staff about the objectives of the Team and the Center is enough to bring about the performance needed to attain the objectives. Institutional performance evaluation would be warranted to evaluate the extent to which the objectives are being met. We raise the point that it cannot be assumed that a goal or objective is being achieved unless the institution can point to the means of achieving the goals through their embodiment in tasks. The outputs that reflect the goals must be

the result of tasks. The standards of performance that reflect the goals must be reflected in skills and knowledge required at appropriate levels. There are no other places to look for the expression of goals.

A fourth concern deals with the work assigned to Teams and the nature of the work allocations to the Teams. The institution will do well to reconsider which types of tasks are enhanced by having their performers in a Team and which are not appropriate to Team jurisdiction. On the other hand, it is hard to imagine a team working properly unless its members are interdependent. It appears that, currently, many of the tasks performed by the Family Health Worker are subject to being redone by the Nurse Practitioner whose tasks are, in turn, subject to being redone by one physician or another. The performer whose work is redone does not develop a full sense of participation and does not have the opportunity to develop responsibility and decision making skills.

It may be that the higher-level Team members do allocate responsibility, but this becomes a privilege of upper-level titles which must be policed to be sure it is being carried out. The excuse that lower-level members are "not ready" can easily be overused, especially when there are no formal means of assessing readiness.

The alternative is to have tasks which are so unique to title that the upper-level titles are dependent on lower-level titles for some outputs, as well as the reverse being true. There is no better way to ensure efficient output than to have a co-worker depend on it for the performance of his own tasks. The ladders represented in Chapter 6 are

an attempt to provide that type of interdependence.

It might be added that a program of upward mobility enhances and becomes an incentive for efficient performance when upgrading is partly dependent on the quality of current level performance.

The Team concept is a good one if its conceptual implications are considered, and if it is treated as a mechanism for the delivery of service rather than an end in itself. It has already shown itself to be a viable structure. Our hope is that it will be developed in the direction of its strengths.

PERFORMANCE EVALUATION AND CURRICULUM DESIGN

The possibilities of designing educational functions to meet community needs are extremely exciting, even if they are not the most likely way in which career ladders will evolve. This section presents a brief outline of the events to be anticipated in and planning for job functions and related education. It is addressed primarily to health care institutions and health manpower educators who are concerned about the methods of implementing innovative change cooperatively.

The institution providing the health care and the institution providing the education for the manpower involved will, with the community, be embarking on a joint venture to deliver the type of care that is wanted, including how it is to be delivered and the quality of attitude and approach to be demanded of the practitioners. From these discussions will emerge a set of goals and priorities. At this point,

two sets of very specific statements would be needed:

1. Statement of the health services to be delivered.
2. Statement of the general educational objectives to be achieved in training manpower to deliver the services.

The statement of health services to be delivered would be translated into normative task statements. These would include existing tasks for which HSMS-type task data had been collected. The tasks would be subjected to performance evaluation to make them acceptable¹ in terms of the objectives.

In addition, the institution would identify the tasks not yet in existence, but which would be required in order to provide all the services represented on the statement of health services. The idealized ladders of Chapter 6 include such tasks. The HSMS task identification

¹ The HSMS methodology provides sufficiently detailed and standardized information to assist with such needs. This application of the HSMS method is described in Research Report No. 6, mentioned at the end of Chapter 1. Use of the HSMS data for evaluating institutional performance would be a logical concomitant of any institution's plans to implement a full-fledged upgrading program involving a restructuring of jobs. Such commitment provides the opportunity for reevaluating institutional performance in relation to goals. The methodology described in Research Report No. 6 provides the institution with a means of evaluating whether it is producing the outputs it wishes, in the best ways possible and to ascertain, using its own standards, whether performance of tasks meets its standards. The document also shows how the HSMS data make it possible to locate the tasks which are not being done well and to pinpoint the skill and knowledge areas which are responsible for the performance problems.

procedure could be used to describe such idealized tasks. The application of the task definition (with existing task statements used as examples) would provide a concrete set of data similar to existing task data. It is essential to realize that the new objectives and attitudes to be achieved can be expressed in terms of elements within tasks. For example, taking account of a patient's social situation can be expressed as a task element.

Similarly, the skill scale requirements reflect the human qualities, responsibility, and judgmental standards of behavior to be attained. The existing tasks could be evaluated to be sure that the skill and knowledge data properly reflect desired content and at appropriate scale levels. (This is described in Research Report No. 6.) The new, idealized tasks would be treated similarly. The entire set of task data would then represent all the tasks needed to provide the list of services as determined by the objectives. These would be assembled in the type of job ladders described in Chapter 6, using similar methods.

Thus, the new jobs in the idealized ladders would be created (or redesigned) by combining tasks in the same skill and knowledge families which are at similar levels in those families. Added to these would be the tasks required to facilitate the procedures, such as dealing with supplies or planning work. The restructuring could clearly not go on in a vacuum. Existing practitioners and administrators would be consulted.

The Curriculum Unit

The design of curriculum sequences, any attempt to eliminate overlap or redundancies, and any attempt to eliminate unnecessary curriculum content requires a unit of analysis on which analysts can independently² agree. This means that a curriculum unit must be operationally defined.

The literature on behavioral objectives in education places curriculum design into a framework which acknowledges that it must be consistent with educational objectives. Curricula are conceived in terms of the activities which must be displayed by the learner in order to demonstrate that the learning has taken place. As a result, the content learned, the application of the content, and the method of presentation must be functionally related in the original conception of the curriculum. The educational objective and the curriculum are translated into behavioral³ objectives. The HSMS preliminary definition of the curriculum unit is as follows.

The curriculum unit represents the subject matter to be

-
- ² This means that, given a course of study, different analysts using the same definition will fairly closely agree on the identification of the curriculum units involved. Having found no such unit currently defined in the literature, the Health Services Mobility Study attempted to develop a working definition which could be used to meet the objectives stated. This work is described in Working Paper No. 10, referred to in Chapter 1. Some of the contents of that document are discussed here to provide a frame of reference for the reader.
- ³ "Behavioral objectives," as used by educators, are expressed in statements which indicate what learners are expected to do or will do on successful completion of a prescribed unit of instruction.

imparted to the student in order for the student to be able to demonstrate his mastery of a cohesive, interrelated set of ideas and/or procedures. The curriculum unit is expressed in a behavioral statement similar to an Informational Objective,⁴ and has the following characteristics:

1. The behavioral objective must have self-evident and independent meaning; it must be comprehensible without the statement of other behavioral objectives. (Otherwise it is too small.)
2. The behavioral objective must be able to be stated briefly, such as in a paragraph. (Otherwise it is too large.)
3. The behavioral objective should require the student to learn a somewhat complex, interrelated set of procedures and/or skills and/or ideas which can be demonstrated. (Otherwise it is too small.)
4. All the subject matter contained in the curriculum unit must be necessary for the demonstration of mastery of the behavioral objective, and all its contents must be logically related. (Otherwise it is not cohesive.)
5. It must be possible to convert the behavioral statement into a Planning Objective statement by the addition of a statement concerning the conditions of demonstration and the criteria for evaluation of the mastery of the content of the behavioral statement.⁵ (Otherwise it is too large.)
6. It must be possible to relate the curriculum unit to a general educational objective.⁶ (Otherwise it may be irrelevant.)

⁴ An "Informational Objective," as used by educators, describes the behavior which a learner will have to employ to demonstrate his mastery of the informational and/or skill content of the objective.

⁵ A "Planning Objective," as used by educators, (1) describes the behavior which the learner will have to employ to demonstrate his mastery of the informational and/or skill content of the objective; (2) it describes the conditions under which the behavior is to occur; and (3) it describes the criteria which are to be used to evaluate the learner's mastery.

⁶ A "general educational objective," as used by educators, states the nature of the broad subject area involved in an educational program and indicates the type of behavioral goal to be reached in relation to it.

7. It should not be possible to divide the behavioral statement into still finer Planning Objective statements which could also fulfill the criteria listed here for behavioral statements. (Otherwise it is too large.)
8. It should not usually require the content of an entire course to make it possible to achieve the behavioral objectives of the curriculum unit. (It usually would mean it is too large.)

The definition presented above and the eight standards for its application are presented to the reader as the first tentative effort at an operational definition of the curriculum unit. At this writing it has not yet been field tested for reliability, nor has a manual been designed for curriculum unit identification similar to the field manual for task identification.

Curriculum Design

The use of curriculum units is nowhere more needed than in the setting being described here. The crucial strength in the curriculum unit is its ability to clearly articulate and relate learner activities, anticipated outcomes, job objectives, and general educational objectives. In addition, the teaching method then becomes an integral and an absolutely necessary part of the curriculum design.

The relationship between the statement of health services and the statement of general educational objectives will be expressed in the elements of the tasks, and should be expressed in the behavioral statements describing the curriculum units.

If one of the goals of the institution is to provide responsive and relevant care, the general educational objectives will have to include

the development of knowledge and awareness of the population to be served. The tasks should have elements to reflect this, and the behavioral statements for curriculum units will have to include a demonstration of such awareness.

The curricula can be specifically geared to draw on the inter-relationships of skills and knowledge, and can utilize the different knowledge areas to specifically develop the skills. The skills can be used to develop the understanding of the knowledge. If the teaching methods emphasize the direct teaching of skills as well as knowledge, both needlessly long and unduly inadequate training could be eliminated to an extent not yet imagined.

Informational Objectives and curriculum units which are common requirements for a number of jobs can be offered to students preparing for various jobs in a ladder or several different jobs in a lattice. Once they are identified, they can provide the basis for efficient use of time and for enrichment of students' experience through exposure to co-workers in different but related activities.

The job ladders will provide exit points along the way for practice. Thus, in the next learning sequence as the individual rises the prior learning is reinforced and added to. All this presupposes that the educational methods will emphasize and amplify the additive nature of the learning and will not provide the training in discrete, disconnected units.

INSTITUTIONAL CHANGE

Social pressures have been an impetus toward the development of upward mobility programs. But, only if there is a functional incorporation of upward mobility into the institution's manpower structure will the pressures be satisfied. One-shot, one-step upgrading programs have proven themselves inefficient, short-lived, and have themselves become sources of frustration. They have created and then failed to fulfill the just aspirations of loyal workers who provide a huge dedicated core from which to draw in the provision of health services.

Once an institution is committed to upward mobility as a continuous part of manpower administration, it must be aware that this requires planning the means for implementation. The design for upward mobility through job ladders or lattices is like the creation of a railroad. The flow of trains can be directed to suit the needs of both the institution and the individuals involved, but the tracks must first be put into place.

We have found that the implementation of a career mobility approach necessitates changes within the institution such as the coordination of recruitment, training plans, and upgrading pathways with the operations of the institution. Planning and a redirection of focus may be needed. No amount of commitment at high management levels can substitute for the involvement of middle and lower line personnel in the implementation of institutional change. The greatest enemy of a viable mobility program is staff ignorance of what is happening.

For this reason we believe that the issues of upward mobility should be discussed at every level of an organization and in cooperation with employee organizations where they exist. It should be noted that persons are less resistant to upward mobility for others when they have avenues open to themselves as well. Thus, a career ladder or lattices linking entry-level jobs through graduated sequences to the very highest professional and administrative jobs is most desirable if maximum support is to be enlisted. On such ladders even high-level employees can move up. However, such true career ladders require the greatest amount of rethinking with respect to manpower planning and implementation.

The reader will by now have become aware of the large number of external obstacles that make the implementation of career ladders seem a distant goal. It is hoped that this document will have helped in the provision of some of the detailed methodology needed for designing the ladders and the curricula.

There remains the need to enlist the willingness on the part of many institutional employers, educators, and employee organizations in order to eliminate some of the institutional barriers. These include rigid certification and licensure barriers, the red tape connected with having new curricula approved, and the bureaucratic impediments to accepting new jobs. It should be pointed out, however, that the greatest obstacles collapse when the coordinated efforts of large-scale employers are joined with major educational institutions and employee organizations. Thus, the full weight of a municipal hospital system or a federation of voluntary hospitals,

combined with the force of a major trade union, and joined by a major educational complex can be sure it can effect changes in state licensure requirements when such requirements can be shown to be less than rational.

It would appear that the act of sitting down together for such purposes is rarer than any defeats stemming from such attempts. The vision of three or four levels of curriculum planners devising ways to ensure continuous educational programming is less irrational than it is unfamiliar.

We would also urge that Federal legislation, which has begun to move in the directions discussed here, aid in bringing about the changes needed by rewarding such efforts through the types of educational projects that are given priority in funding. There is still the need to find means to finance release-time training of employed adults. There is still the need to arrange such funding in a way that does not require the institution to go to a different Federal agency for each level on a ladder.

As a matter of fact, the health care industry would benefit from less organizational fragmentation at a Federal level with respect to health manpower. For example, as the National Institutes of Health is now structured, "Allied Health" is legislatively defined to include a very restricted set of occupations, and cannot overlap with the jurisdictions in nursing or physician manpower. Any true career ladder will probably cut across all three jurisdictions. There would be great benefit in legislation which permitted multiple agency involvement.

A NOTE ABOUT THE HEALTH SERVICES MOBILITY STUDY

This document reports on the first pilot test conducted by the Health Services Mobility Study. The document must itself now be tested. It is important for us to know whether the results reported here are considered relevant, useful and generalizable. If they are, then it would be worthwhile for the Study to continue to apply the method in other areas and to report the results. These are now the plans for the coming year. You, the reader, can help to determine whether that will be a useful direction by the degree to which you make use of the Report and to the extent you tell us about it. We would like to hear from you.

APPENDIX A
BASIC DATA TABLES

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Table A.1 EXTENDED TASK NAMES BY CODE NUMBER
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Task No.*	Task Name
1	Performing fluoroscopy of any patient's lower intestinal tract, by deciding if "scout film" shows clear tract; reassuring patient; supervising X-ray technician in administering barium enema; setting and using fluoroscope machine, observing lower intestines on monitor; deciding on and taking spot films, watching out for bowel puncture and arranging to hospitalize if necessary; specifying to X-ray technician in detail any special X-rays to be taken; recording observations.
2	Deciding whether to load 70 mm. film in fluoroscope machine: loading roll of film into photographic attachment on fluoroscope machine by inserting new spool of 70 mm. film, threading into machine part, closing, and advancing film to compensate for any exposure to light; unloading exposed roll and placing for developing.
3	Performing fluoroscopy of any patient's upper gastrointestinal tract, by reassuring patient, supervising administration of barium drink; setting and using fluoroscope machine; observing upper gastrointestinal tract on fluoroscope monitor; deciding on and taking spot films; specifying to X-ray technician in detail any special X-rays to be taken; recording observations.
4	Performing fluoroscopy portion of hysterosalpingography on any adult female patient, by reassuring patient; supervising the instillation of roentgenopaque (hypaque) solution into uterus and uterine tubes by second radiologist; setting and using fluoroscope machine; observing condition of organs on monitor; deciding on and taking spot films; specifying to X-ray technician in detail any special X-rays to be taken; and recording observations.
5	Performing instillation portion of hysterosalpingography on any adult female patient, by reassuring patient, inserting sterile vaginal speculum, inserting sterile cannula, using sterile tenaculum, through cervix into uterine cavity; instilling roentgenopaque (hypaque) solution on orders of second radiologist; removing equipment when indicated.

* Tasks with asterisk appear for more than one of the 12 titles studied.

Table A.1 EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 2 of 35

Task No.*	Task Name
6	Reading, interpreting and making recommendations based on newly developed (and old) radiographs and/or spot films; reporting findings, conclusions and recommendations based on readings and notes; dictating and placing for secretary to type, and, on request, reporting orally; assessing quality of film for later discussion with subordinate.
7	Informally assessing performance and output of X-ray technicians and dark room aides; discussing errors and explaining correct procedures and/or demonstrating; deciding whether to informally report consistently bad performance to X-ray supervisor and/or Medical Director; doing so.
8	Answering physicians' questions about interpretation of radiographs and spot films by phrasing answers so that they educate the questioners and are specific to examples presented.
9	Diagnosing any non-child patient's medical condition and deciding on a course of treatment or care, by taking medical and complaint history, reviewing all relevant medical information, results of tests and X-rays, examining physically, discussing symptoms; and deciding on referrals or tests, X-rays, or care, and/or delegating and ordering care, treatment, medications, prescriptions, follow-up; discussing with patient; recording on patient's chart.
10	Deciding on whether to carry out a prescribed course of treatment, care or medication for any non-child patient, and/or changing or approving renewal of prescriptions, by reviewing prescribed care, examining present condition, discussing progress and symptoms with patient; deciding to administer medication or care or to have it done by subordinate; ordering medications, materials and/or administering medications, observing relevant reactions; recording on patient's chart.
11	Performing a routine pelvic examination on any adult female patient; taking samples for Pap and/or gonorrhea test; recording on patient's chart and Pap smear (cytology) form; having Pap smear slides prepared and/or preparing Pap smear slides and/or GC culture for lab.
12	Removing a wart from any non-child patient, by use of scalpel and/or electrodesiccator - fulgurator, local anesthetic; deciding whether to have specimen analyzed for pathology; if so, cutting specimen and preparing for analysis, by putting it in preservative and filling out report; recording on patient's chart.

Table A.1 EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
13	Setting up an intravenous apparatus for any non-child patient and instructing patient's family members by preparing bottle(s) of prescribed solution, inserting the IV needle into patient's vein and regulating the flow; instructing family members and/or subordinates in how to regulate flow, change bottles and remove apparatus; recording on chart.
14*	Evaluating a prepared skin specimen slide for presence of mycelia (fungi) by adding KOH solution, heating over flame, and examining slide under microscope; and recording findings in patient's chart.
15*	Determining the presence of trichomonas protozoa in a prepared fresh slide of vaginal secretion, by examining under microscope while still fresh; recording findings in patient's chart and/or lab slip.
16*	Examining a slide prepared with penis or vaginal discharge by heating over flame, applying stain using Gram's method, and examining under microscope for presence of gonococci (gonorrhea); recording findings in patient's chart.
17*	Evaluating (EKG technician's) suspicious EKG readings of any patient to determine whether they are caused by a true health dysfunction or are mechanical or electrical artifacts; taking appropriate action, such as adjusting equipment, caring for patient, summoning emergency care; informing patient's Dr.; recording care given.
18*	Drawing blood from any non-child patient's vein and filling test tubes or vacutainers with appropriate blood samples; labeling or having labeled and/or brought to lab; arranging to have co-worker obtain sample from hard to find vein if necessary; recording on patient's chart.
19	Deciding whether to administer radiopaque solution for IVP (X-ray of kidney and ureter), by questioning patient about allergy to iodine, history of asthma; and/or injecting and watching reactions to 2 cc. test injection; if ok, injecting full amount of radiopaque solution; standing by for delayed adverse effects; telling lab technician when to go ahead with IVP. If adverse effects, administering emergency care; informing patient of allergy; recording on patient's chart.

Table A.1 EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
20*	Reading, interpreting and diagnosing an emergency ("stat") X-ray at request of Dr. ordering it; recording on X-ray request form, and having it sent to Dr; informing Dr. of interpretation and diagnosis.
21	Informally providing training in patient care procedures, skills, and knowledges for an intern or resident in internal medicine, by demonstrating and/or explaining and/or observing intern or resident and explaining errors when requested by intern or resident.
22	Responding to a call for emergency assistance in the cardiac arrest of any patient by cooperating with other physicians and staff to take emergency action such as insertion of endotracheal tube, performing tracheostomy; administration of artificial respiration and oxygen; providing cardiac massage; taking EKG and applying defibrillator, injecting intracardiac stimulant; providing IV infusion; arranging to hospitalize patient.
23*	At request of patient, co-worker, patient's family or institution, filling in agency or school forms and/or writing letters describing or evaluating patient's medical condition and/or medical or social history, based on patient's chart and Dr.'s knowledge of patient's condition; having letter typed, signing; having letter posted.
24*	Assessing the urgency of follow-up appointments for patients who have not showed up for visit to performer (Dr.), recording; planning personal follow up with Family Health Worker, and/or LPN (Subordinates) if considered necessary, or having secretary arrange new appointments if considered necessary.
25	Contributing to Family Health Team conferences by suggesting patients, planning for, assembling materials for, and making presentations to; contacting patients, leading or participating in discussion on patient's problems, based on experience as internist; helping to arrive at decisions on care; participating in discussion of Team functioning, based on experience as internist on Team; recording.
26*	Participating in committee work at Center dealing with health procedures and practices or institutional policy, by selecting or being invited to join committees of personal or professional (physician) interest, carrying out committee work through discussion, research, writing, gathering information or views of other co-workers, helping to arrive at recommendations, and/or disseminating results to appropriate co-workers.

Table A.1 EXTENDED TASK NAMES BY CODE NUMBER (continued)

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Task	No.* Task Name
27*	Planning and presenting lectures on prescribed subjects in patient care and medicine to subordinate staff and/or students studying for health care jobs, by deciding what should be presented, planning outline and method of presentation, assembling instructional materials, and presenting lectures; being sensitive to response at time of delivery of lectures.
28*	Determining whether a patient requires immediate emergency care; deciding whether to call ambulance and what immediate life support procedures to administer; applying procedures covering loss of breathing, cardiac arrest, hemorrhaging, poisoning, drug overdose, shock; deciding on splinting of serious fractures.
29*	Informally instructing health care subordinates in patient care activities, by demonstrating and/or explaining, using materials normally used in the course of carrying out the task being used for demonstration; deciding who to teach, what to teach, when to call in subordinates, when to have a group session for instruction and how to teach.
30	Taking a sample of spinal fluid from any non-child patient by ordering materials, having patient prepared, injecting local anesthetic, inserting needle into subarachnoid space, taking pressure with manometer and recording, drawing up fluid into syringe, examining fluid and deciding if emergency hospitalization is necessary, taking and recording fluid pressure again; arranging to have lab tests done; and recording on patient's chart.
31	Taking a bone marrow sample from any non-child patient by ordering materials, having patient prepared, injecting local anesthetic, inserting bone marrow needle and drawing up marrow into syringe; arranging to have lab tests done and recording on patient's chart.
32*	Suturing any patient's small open wound by injecting local anesthetic, deciding on number of stitches, knot, suture material, needle; sterilizing; sewing; providing shots, instructing on daily visits, and notifying Health Department if human or animal bite; explaining home care to patient or accompanying adult; recording in patient's chart.
33*	Removing a patient's sutures using antiseptic, clamp, scissors, forceps; evaluating healing; deciding on and ordering antibiotics, medication, irrigation and/or bandaging; recording on patient's chart.

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Table A.1 EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
34*	Incising and draining any patient's external abscess or boil, using topical anesthetic, antiseptic, lancet or scalpel, and deciding on medication, packing, dressing and bandage; recording on patient's chart.
35*	Determining the presence of organisms or abnormal conditions in spun-down urine sediment and supernate by spinning urine sample in centrifuge, preparing slide and examining under a microscope; testing supernate for chemical content, using tablets or dipstick; measuring specific gravity of supernate; deciding on nature of findings; recording findings and conclusions on patient's chart.
36*	Observing patient's blood sample under microscope and determining condition, by dropping and smearing blood on slide, applying appropriate stain, examining under microscope, and recording findings on patient's chart.
37*	Caring for any patient with injury such as lacerated wound, fracture, sprain, burn or bleeding nose, by deciding on procedures and materials; using sterile procedures if appropriate, and cleaning, applying butterfly adhesive, medication, sterile dressing, splint, tape, bandage, packing, sling, as appropriate; prescribing antibiotic or pain killer if appropriate; explaining care to patient or family member including care of injury, use of medication, crutches, other aids, signs of infection. Arranging follow-up; recording.
38	Removing a foreign object from any patient's eye or ear, by using magnification lens and reflected light to locate, and eye anesthetic and applicator stick to remove object from eye; head mirror and ear speculum to locate, Zephiran solution to lure live object from ear, or flushing with ear syringe or using forceps with ear speculum and mirror to remove object from ear; recording on patient's chart.
39	Diagnosing any female patient's gynecological or obstetrical condition and deciding on a course of treatment or care, by taking medical and complaint history, reviewing all relevant medical information, results of tests, EKG, X-rays; examining physically; taking smears or cultures; discussing symptoms; deciding on referrals, tests, X-rays, treatment, care, or procedures; and/or delegating and ordering care, treatment, medications, prescriptions, follow-up; discussing with patient; counseling on self-care; recording on patient's chart.

Table A.1 EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
40	Deciding whether to administer, change (and/or approve renewal of prescription for) medication for female patient, by reviewing RX, chart, present condition, discussing progress and symptoms with patient; deciding to administer medication or to have it done by subordinate; ordering medications, materials; administering medication by intravenous, intramuscular or subcutaneous injection, or by inserting in vagina or rectum; observing reactions; recording on patient's chart.
41	Providing prescribed intra-vaginal treatment or care for any female patient, by reviewing prescription, present condition; deciding to go ahead or change procedure; cauterizing using electric cauterizer; doing punch cervical biopsy; inserting IUD using be-tadine and tenaculum; removing vaginal polyps using forceps; correcting retroflexed uterus by inserting pessary; fitting diaphragm; applying sterile procedures and using gloves, speculum; explaining aftercare to patient or appropriate instructions; arranging for follow-up; recording on patient's chart.
42	Providing fertility assistance to adult female patient, through deciding to do any or all procedures involving counseling, instruction in temperature charting, prescribing medication, using needle and syringe for andrometric biopsy and analysis, arranging for analysis of husband's sperm; discussing findings with patient; recording on patient's chart.
43	Delivering a baby through the vagina, by examining patient; judging when there is true labor; ordering IV; deciding when to send patient to delivery room; deciding on pain relief and/or anesthetic, whether to rupture amnionic sac, whether to perform cesarean section. Assisting in birth with forceps, vacuum extractor and/or performing episiotomy with scissors; providing emergency care in case of cardiac arrest; clamping and cutting umbilical cord; inspecting placenta; providing aftercare; deciding when to release patient; recording and filling out any necessary papers.
44	Delivering a baby by cesarean section, by examining patient and deciding whether to go ahead with surgery; deciding on anesthetic, location of incisions; incising skin, fatty tissue, muscle wall, and uterine wall; retracting; removing infant, clamping off and cutting umbilical cord, removing placenta; closing, choosing suture materials, suturing; providing after care; deciding when to release patient; recording and filling out necessary papers.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.	Task Name
45	Performing an abortion by applying curettage to female with twelve weeks or less of pregnancy, by examining and deciding whether to go ahead; deciding on anesthetic; retracting vagina; applying vacuum suction; scraping remaining matter, checking patient's condition; arranging for follow-up and/or after care; recording on necessary documents.
46	Performing a saline abortion on a female with 12 to 24 weeks of pregnancy, by examining and deciding whether to go ahead; deciding on anesthetic; retracting vagina; using syringe and catheter to withdraw amniotic fluid, and syringe to inject hypertonic fluid into amniotic cavity of uterus; checking patient's condition; returning after 48 hours to check patient after she has aborted; arranging after care and follow-up; recording on necessary documents.
47	Surgically excising all or part of uterus, ovaries, ovarian ducts, cysts or growths from adult female, by examining and deciding whether to go ahead, whether to enter through abdominal wall or vagina; choosing anesthetic; incising skin, fatty tissue, muscle wall; deciding how much to remove based on examination and/or biopsy; excising as decided; closing, choosing suture materials, suturing; providing emergency care in case of cardiac arrest; providing and/or arranging for after care; deciding when to release patient; recording.
48	Performing vaginal plastic surgery or surgically correcting vaginal hernia in adult female, by examining and deciding whether to go ahead; choosing anesthetic; deciding what manipulation to perform and what to remove, by incising vagina, examining tissues and/or having biopsy done; manipulating or excising tissues as decided; closing, choosing suture materials, suturing; providing emergency care in case of cardiac arrest; providing and/or arranging for after care; deciding when to release patient; recording.
49	Performing ligation of fallopian tubes on adult female by examining and deciding whether to go ahead, whether to enter through abdominal wall or vagina; choosing anesthetic; incising; examining for tumors and, if found, performing biopsy; excising malignant tissue; ligating each tube in two places and cutting tubes; closing, choosing suture materials, suturing; providing emergency care in case of cardiac arrest; providing and/or arranging for after care; deciding when to release patient; recording.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
50	Taking a sample of amniotic fluid from a pregnant patient by ordering materials, having patient prepared, injecting local anesthetic, inserting needle through abdomen into uterus; drawing up fluid into syringe; examining fluid; filling test tubes; arranging to have lab tests done; and recording on patient's chart.
51	Determining the presence of monilia (candida) fungi in a slide of vaginal secretion, by adding potassium hydroxide and examining under microscope; recording findings in patient's chart and/or lab slip.
52	Contributing to Family Health Team conferences by participating in discussion on patient's problems, based on experience as Obstetrician-Gynecologist; helping to arrive at decisions on care.
53	Informally instructing nurses in appropriate patient care activities, by discussing, demonstrating and/or observing nurses' work and explaining, or when requested by nurses, or while nurses assist, using materials normally used in carrying out patient care activities. Informally assessing performance and efficiency of nurses and reporting in writing if called for by chief Obstetrician-Gynecologist (supervisor).
54	Participating in Obstetrics-Gynecology physicians' conference at Center, by participating in discussions on patient care problems, and helping to arrive at conclusions with co-workers, based on professional knowledge and experience.
55	Diagnosing any pediatric patient's development, psychological and medical condition and deciding on a course of treatment or care, by taking medical and complaint history, reviewing all relevant medical information, tests and X-rays, examining physically, discussing symptoms; deciding on referrals, tests, X-rays, or care; prescribing care, treatment, medications, follow-up; delegating as decided; discussing with patient and/or adult, counseling; recording.
56	Deciding on whether to carry out a prescribed course of treatment, care or medication for any pediatric patient, and/or changing or approving renewal of prescriptions, by reviewing prescribed care, examining present condition, discussing progress and symptoms with patient and/or accompanying adult; deciding to administer medication or care or to have it done by subordinate; ordering medications, materials; and/or administering medications by insertion, as drops, as injections; observing relevant reactions; recording.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
57	Removing a foreign object from any patient's ear, by using light, head mirror and ear speculum to locate, Zephiran solution to lure live object from ear, flushing with ear syringe or using forceps with ear speculum and mirror to remove object from ear, or arranging to send patient to hospital; recording on patient's chart.
58	Preparing any patient with foreign object in eye for care at hospital, by applying strip of sodium soluble fluorescein dye; applying eye patch; arranging to send to hospital; recording on patient's chart.
59	Removing a large, blunt metal object from any patient's pharynx, by inspecting with laryngoscope or interpreting X-rays; deciding to remove or sending to hospital; removing with use of fingers or forceps, holding tongue with tongue blade; arranging to send to hospital if necessary; recording on patient's chart.
60	Taking a sample of spinal fluid from any pediatric patient by ordering materials, having patient prepared, injecting local anesthetic, inserting needle into subarachnoid space, taking pressure with manometer and recording, drawing up fluid into syringe, examining fluid and deciding if emergency care and/or hospitalization is necessary; prescribing and administering IV infusion of food and/or medication; taking and recording fluid pressure again, arranging to have lab tests done; recording on patient's chart.
61	Drawing blood from any pediatric patient's vein by deciding where to draw from and syringe and needle size; preparing child by mumifying; locating vein; drawing blood, and filling test tubes with appropriate blood samples; providing aftercare for puncture to prevent hemorrhaging.
62	Taking a bone marrow sample from any pediatric patient by ordering materials, having patient prepared, injecting local anesthetic, inserting bone marrow needle and drawing up marrow into syringe; arranging to have lab tests done and recording on patient's chart.
63	Planning and writing lectures on prescribed subjects in patient care and medicine for Nurse Practitioners, by deciding what to present, materials to use; writing lectures, distributing to committee of pediatricians, editing; presenting lectures; participating in preparation of examinations, setting grading standards; administering tests, grading; evaluating students' ability to perform specific activities without direct supervision.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
64	Informally providing supervision and training in patient care procedures, skills, and knowledges for Nurse Practitioners, in pediatrics, by demonstrating and/or explaining while supervising or observing; deciding when RN can perform activities without direct supervision.
65	Taking radiographs (X-rays) of any patient according to Dr.'s orders, using vertical and/or table X-ray machines, including positioning patient, adjusting controls and kilovoltage, judging quality; redoing if necessary; if "stat," identifying, jacketing and preparing for pick-up, and calling Dr.; recording in Log Book.
66	Taking IVP's (intravenous pyelogram(s)) according to Dr.'s orders, including preparing for allergy test and proceeding only on Dr.'s orders; positioning any patient; adjusting controls on table X-ray machine; watching for delayed adverse reactions of patient; judging quality and deciding to redo; if "stat," jacketing and identifying developed films for pick up and calling Dr; recording.
67	Taking lower G.I. series radiographs by taking preliminary X-ray for judging readiness for barium enema; administering enema on radiologist's orders; taking X-rays of patient with barium enema and/or air contrast X-ray, using table X-ray machine, barium enema, air syringe; positioning patient, deciding on kilovoltage, assessing quality, preparing patient and materials for radiologist; if "stat," jacketing, calling Dr.; recording in Log Book.
68	Preparing patient and barium drink for fluoroscopy; taking X-rays following fluoroscopy according to standard procedures and proper lapses of time, using table X-ray machine; positioning, deciding kilovoltage; assessing quality; if "stat," identifying, jacketing, calling Dr. who ordered; readying for radiologist; recording in Log Book.
69*	Developing radiographs and spot films by use of automatic film developing machine, including unloading cassettes, transferring identification from card to film with flasher machine, mounting 70 mm. rolls on film sheets; inserting film in developer; being sure light in room is out during entire process and until buzzer signals; giving priority to "stat" films.
70*	Preparing a tank used for hand developing of X-ray films for use by filling water compartment with water and making sure temperature is at 68°F., stirring developer and fixer solutions in their compartments and covering the compartments.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
71*	Developing radiographs by use of hand developer, giving priority to "stat" films, including unloading cassettes, transferring identification from card to film with flasher machine; and deciding on time needed in use of tank compartments for developer, fixer, solutions, and water (at 68°F.); drying; being sure light is out during process; giving to technician, or placing for use.
72*	Loading a cassette(s) with unexposed, standard size, X-ray film(s), being sure light is out in room during process, and/or filling box for vertical X-ray machine with unexposed X-ray films; if appropriate, placing for use.
73	Reassuring any patient about X-ray and/or fluoroscopy procedures by being sympathetic, explaining safety of procedures, what will happen, and answering questions about X-ray and related procedures.
74	Explaining to any patient who has not followed proper prior procedures required for special X-ray what he must do the next time he has the appointment for the X-ray.
75*	Translating conversations between any institutional (Center) staff and any patients, from Spanish to English and from English to Spanish (if performer speaks both).
76	Obtaining information on supply needs of department by noting employee requests, own observations and taking inventory; deciding what to order; filling out requisition form and giving to designated co-worker (receptionist).
77	Monitoring the functioning of an X-ray department, including dark room, X-ray and clerical activities, and taking appropriate steps to allocate work activities so that all functions are covered.
78	Preparing a radiograph packet for interpreting by radiologist by matching requisition form to approved new radiographs, labeling envelope with identification information, placing in plastic jacket with patient's older radiographs (if ordered) and/or folder (if new patient) and placing for delivery to radiologist.
79	Preparing a barium enema by filling bag containing powder with specified amount of water, assembling tube and clamp, and placing on work table or hanging at proper height; reporting short supplies.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 13 of 35

Task No.*	Task Name
80	Assembling medications and materials to be used for test of allergy to radiopaque dye used in intravenous pyelogram (IVP) and for patient care in case of adverse reaction; reporting short supplies.
81	Assessing the quality of radiographs at the request of the co-worker (X-ray technician) who took them.
82	Calling appropriate repair company and requesting repair of any equipment in X-ray department by finding out what is malfunctioning and describing to repair company personnel.
83	Identifying obvious medical condition of any non-child patient and arranging for routine care or referring patient to Dr., by taking case history, interviewing patient about symptoms, taking vital signs, looking at throat; ordering standard tests, specimens X-rays and/or medications on advice of doctor; deciding to perform or delegate some tests, specimen taking or giving medication; explaining to patient; recording on patient's chart.
84	Performing a pelvic examination on any adult female patient, by examining pelvic organs, breasts; taking and preparing cultures and/or smears from vagina; recording on Pap smear (cytology) form if appropriate; arranging for delivery to lab; if abnormalities, arranging for consultation with Dr. or ordering standard treatment for VD or vaginal infection; recording on patient's chart.
85	Providing post-partum examination and evaluating condition of any new mother by giving general examination and checking vaginal stitches, breasts, uterine fundus, asking about discharge, bleeding, health functions; providing instruction in care of stitches, breasts, how to deal with milk, breast feeding; diagnosing and prescribing care for minor problems, referring abnormalities to Dr., and arranging for treatment, care, medication; recording on patient's chart.
86	Performing a pre-natal examination on any pregnant female patient, by taking vital signs, height, weight, examining breasts, listening to fetal heartbeat, performing pelvic examination; counseling and discussing pregnancy, care, diet, hospitalization, emotional problems; taking specimens for tests; identifying condition or consulting Dr. if abnormalities found; prescribing care, treatment or medication with Dr.'s approval if appropriate; recording on patient's chart.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
87	Carrying out a prescribed course of treatment or care, or arranging for refill of medication for any patient by reviewing prescribed care, examining present condition, discussing with patient; deciding to refer problems or regulated drug renewal requests to Dr. for consultation or approval; ordering or administering medications; providing care such as for infections or wounds; assessing progress; recording on patient's chart.
88	Identifying any child patient's physical, psychological or social condition with consultation of Pediatrician, by taking case history, reviewing medical information, discussing with Dr., patient and/or accompanying adult; giving general physical examination; arranging for specimens, tests, X-rays and/or referrals to special services or Pediatrician. Deciding on treatment or care, counseling, immunization, with help of Pediatrician; and arranging for administering, or follow-up as appropriate; recording.
89	Assessing a newborn infant's medical condition for presence of abnormalities or problems, by physically examining, talking with mother, taking history; consulting with Pediatrician in cases of deformity or abnormality; treating minor problems such as umbilical stump or circumcision wound; deciding on counseling mother on infant care; arranging for referral to Pediatrician or follow-up if appropriate; recording on patient's chart.
90	Performing a post-hospital visit with a chronic schizophrenic patient by talking with patient and checking on medication intake; evaluating whether medication should be reconsidered, whether patient should be seen by psychiatrist; providing counseling in daily living and social problems to patient and/or family; arranging for follow-up, referrals, and/or readmission to hospital; recording on patient's chart.
91*	Providing first aid in an emergency, by deciding whether to notify ambulance, Dr., poison control; deciding what first aid to provide on the spot; providing first aid; recording.
92	Deciding whether to remove thread stitches from a healed laceration and/or removing stitches on Dr.'s orders, using clamp, scissors, tweezers, antibacterial solution; referring infected wounds to Dr.; recording on patient's chart.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
93*	Testing any patient for TB by applying a prepackaged Tine test to arm, instructing patient when to return for results, entering record in patient's chart and/or informing receptionist of need for appointment to check results.
94	Assessing results of Tine test (TB) after correct lapse of time by examining patient's arm and comparing raised area to given standards to determine positive or negative results; recording on patient's chart; if positive, deciding on and ordering further tests, informing Dr., and changing or confirming decisions; recording.
95*	Testing a urine specimen obtained from any patient for items such as glucose, protein, blood, ketones, by use of tablet, urine and water in test tube, for sugar, or tablet and urine for acetone, or by use of dipstick; comparing color results with color on chart; recording results, based on chart comparison, on patient's chart.
96*	Preparing a throat specimen culture by swabbing any patient's throat, wiping on agar plate, labeling plate and having taken or taking to incubator; recording or having ID information recorded on patient's chart, incubator chart and record book.
97*	Preparing test for pinworms either by teaching parent or adult how to prepare slide by use of scotch tape wiped around child's anus or taking specimen personally in early morning; arranging for labeled slide to be taken to lab on same day; recording what was done on patient's chart.
98*	Obtaining a clean catch urine specimen from any patient by explaining clean catch procedure, giving kit, applying procedures to infant, using soap, water, swabs and self adhering urine bag; labeling, preparing for lab and recording on patient's chart.
99	Administering and recording a vision screening test of any patient except infants using Snellin eye charts; referring patients to clinic if self-scoring results indicate less than perfect vision, and calling Dr. if serious disabilities are apparent; recording.
100	Administering, recording and self-scoring the Denver Developmental Screening Test for any child, by presenting objects and words for child's responses, substituting appropriate ethnic items or words if appropriate; applying general rules for use; reporting gross abnormalities in development to Pediatrician; arranging for follow-up; recording.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
101	Providing counseling and instruction in sex matters, contraception, VD, and/or abortion for any patient of roughly adolescent or adult age, by talking about problems, using literature, visual aids, models; explaining options, side effects, consequences of possible decisions; deciding whether to refer to physicians, and/or co-worker; recording on patient's chart.
102	Providing any patient with special or chronic condition with counseling, reinforcement and instruction in daily living adaptations related to his condition, by reviewing diet and medication procedures, ways to adapt home, what to do in emergency; arranging for special care or services, or follow-up; giving emotional support and reporting major problems to Dr.; recording.
103	Measuring and/or re-fitting any fertile, non-pregnant female patient for a diaphragm and/or teaching patient use, care and precautions involved with diaphragm and spermicidal jelly or cream; measuring with fingers or cervimeter and trying out sizes to fit; teaching through explanation, demonstration and observation; arranging for revisits; recording.
104	Administering a common range of motion exercise to any patient on Dr.'s orders, by grasping limb and moving to natural limits in all directions; teaching patient or member of household by demonstration; reporting major changes in patient's condition to Dr.; recording on patient's chart.
105	Irrigating and/or dressing and bandaging a wound or burn as appropriate or on Dr.'s orders, using sterile water or saline solution for irrigation, antiseptic (saline solution for burn) for cleansing; leaving open or dressing as appropriate or ordered using any prescribed medication; wrapping if appropriate using sterile gauze (or vaseline gauze for burn), tape, ace bandage and/or sling; teaching patient or other person how to care for wound; recording.
106	Instructing any patient (or adult caring for child) in postural drainage technique on Dr.'s orders, by showing patient how to lie on bed to have mucus drain, and reinforcing good personal health practices; recording in patient's chart.
107	Examining and teaching an adult female patient self examination of breasts, care of minor cracks and infections and danger signs; arranging follow-up attention if warranted; recording on patient's chart.

Table A.1 . EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
108	Instructing any patient or an accompanying adult in how to perform test for sugar in urine with reagent tablet or dipstick method, and how to keep record of results, by demonstrating and explaining; recording on patient's chart.
109	Teaching a patient, family member or subordinate how to irrigate, change and care for colostomy, by demonstrating and explaining changing of bag, use of enema for irrigating, use of solvent and cement for attaching, or self adhesive bags; explaining care of skin; reinforcing proper health habits; providing psychological support; recording on patient's chart.
110	Receiving any questions (by phone) of any patient or adult caring for child about home care such as diet, medication, treatment; answering in terms of RN capabilities, referring to patient's chart; consulting Dr. for questions beyond RN capability, and relaying responses to patient by phone or recording advice given on chart.
111	Inspecting or arranging for safety inspection of any patient's home; recording safety hazards; deciding on problems and solutions; discussing with Family Health Team members if necessary; arranging for agencies or services to be contacted or provided; recording.
112	Teaching a diabetic patient and members of household how to take oral medication or inject insulin according to Dr.'s orders, by showing how to prepare syringe, swab area with alcohol, choose site of injection, check to be sure needle is not in blood vessel (having patient practice on an orange), how to care for site of injection. Explaining onset of coma or insulin shock and what to do for each; recording on patient's chart.
113*	Giving any patient general reassurance in conversation, by listening, by being sympathetic.
114	Providing pragmatic counseling on personal problems to any troubled patient, by talking with patient and helping to find solutions to problems; judging if patient is seriously disturbed; and referring to psychiatrist or Dr.; arranging for follow-up referrals if appropriate; recording.
115*	Finding out patient's problems and deciding on or reconfirming appropriate agencies for patient's needs; arranging for referral by writing letter, using agency forms or contacting by phone; complying with need for patient permission slips or Dr.'s signatures; shepherding through to the mailing of referral letter or giving to patient; recording on patient's chart.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
116*	Deciding whether a patient requesting transportation to and from institution (Center) should have it, based on review of patient's chart; filling out a description of needs on request form and arranging to deliver to Transportation Dept. and delivering for approval if approved, or explaining refusal to patient.
117	Irrigating any patient's indwelling (Foley) catheter, using sterile materials and saline solution and flushing catheter, allowing returns to flow out into basin; inspecting returns; deciding to change or changing female's catheter on orders (if performer is female) by cleansing area with antiseptic soap solution, removing old catheter and inserting new one in urethra, attaching leg bag; arranging to have male catheter changed; recording on patient's chart.
118	Instructing member(s) of household of patient with indwelling (Foley) catheter in irrigation of catheter under sterile conditions and judging of quality of bladder returns, by demonstration and explanation, using sterile bulb syringe and saline or water at proper temperature; recording.
119	Instructing a new mother in preparing an infant's formula and/or bottle feeding, and/or bathing and diapering infant by demonstration and explanation, using formula ingredients, measuring utensils, sterilizing equipment; prepared, cooled formula, container for bathing baby, water at tested temperature, vaseline, powder, diapers, pins; explaining how to hold baby for bathing and burping; recording on patient's chart.
120	Selecting, planning and presenting classes on subjects in patient care and related topics to students studying to be Family Health Workers, by deciding what should be presented, planning outline and method of presentation, assembling instructional materials, and presenting classes; being sensitive to response at time of delivery; designing examinations, deciding on grading standards; administering and grading examinations.
121	Contributing to Family Health Team conferences by suggesting patients; planning for, assembling materials for, and making presentations to; contacting patients; leading or participating in discussion on patient's problems, based on experience as Nurse Practitioner; helping to arrive at decisions on care; participating in discussion of Team functioning, based on experience as Nurse Practitioner on Team; recording.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
122	Coordinating appointments for any patient involved in multi-agency examination and evaluation (such as psychiatric, neurological and physical examinations) and follow-up referrals, by arranging and checking records of appointments and follow-up, and arranging for family member or Family Health Worker to escort if appropriate; recording.
123	Informally instructing Family Health Workers or Nursing Interns in patient care activities by demonstrating and/or explaining, using materials normally used in the course of carrying out the task being used for demonstration; deciding who, what, when and how to teach, evaluating and sometimes recording subordinates' proficiency; discussing with subordinate; deciding which tasks can be assigned to subordinates to do.
124	Informally checking on subordinates' (Family Health Workers') attendance and punctuality; deciding if there is problem and whether to discuss with subordinate and/or report to supervisor. Approving and signing or disapproving and adjusting requests for personal or vacation time off, based on need to have patients adequately covered; handling interpersonal disputes among subordinates.
125	Participating in committee work at Center dealing with health procedures and practices or institutional policy, by selecting or being invited to join committees of personal or professional nursing interest, carrying out committee work through discussion, research, writing, gathering information or views of other co-workers, helping to arrive at recommendations, and/or disseminating results to appropriate co-workers.
126	Evaluating, changing or approving a requisition form for supplies filled in by subordinate (Family Health Worker) for use in subordinate's work, by reviewing appropriateness, discussing with subordinate; signing approved form; placing for delivery.
127	Planning own work schedule and planning and/or approving a subordinate's work schedule, by deciding whether to have subordinate (Family Health Worker) plan, reviewing patients' charts and follow-up forms and deciding on order of priority for visits; planning own schedule; preparing, approving, or discussing and changing subordinate's plan; and arranging to accompany subordinate where appropriate, retaining a copy of plan.

Table A.1 . EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
128*	Checking on non-medicinal supplies on hand and/or being informed of short supply; deciding, based on experience, what and how much to order, filling out requisition form; and delivering or having delivered to any co-worker in supply room; borrowing supplies needed if appropriate.
129*	Checking on non-narcotic (non-specially regulated) medications on hand; deciding, based on experience or special request, what and how much to order; filling out and signing institutional prescription form; delivering to any co-worker in pharmacy, or having another co-worker deliver; if appropriate, waiting for order to be filled, returning and storing in proper locations.
130	Taking institutional prescription form for non-regulated medicines and pharmaceuticals to pharmacy; or having order filled; storing filled order in appropriate locations, and arranging to borrow any out of stock which are needed at once.
131*	Planning work assignments of medical assistants to treatment rooms by obtaining lunch hour preferences and considering work loads and/or making assignments of MD's and RN's to treatment rooms and/or getting replacement for absent medical assistants -- considering need to cover facilities and personal preferences; making out assignment sheet and informing co-workers or posting in appropriate place.
132*	Checking treatment room set ups and noticing or being informed of treatment room equipment or furniture in need of repair, replacement or minor servicing; doing minor servicing, and/or requisitioning repair, and/or borrowing equipment needed at once; delivering request form to appropriate office.
133	Preparing and administering a subcutaneous or intramuscular injection for any patient according to Dr.'s orders, including preparing medication, filling syringe (from prepackaged or prepared medication), having Dr. approve, checking for allergies; advising of side effects of immunizations; choosing where to inject; disinfecting area before injecting, and recording that injection was administered on patient's chart.
134	Tallying information on specific procedures (eye tests) done and referrals of patients made (to eye clinic); recording, and delivering tally to designated department.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 21 of 35

Task No.*	Task Name
135*	Readying a treatment room for use by throwing away used materials, wiping away blood or secretion stains with anti-bacterial solution, putting clean paper on examination table and/or deciding whether to call and/or calling for housekeeping services; if appropriate, returning patients' charts to receptionist.
136*	Checking a delivered order of non-medicinal supplies, arranging for reorder of absent items; and storing delivered supplies in appropriate designated locations.
137*	Delivering prepared, labeled cultures to incubator and recording appropriate identification information and/or taking prepared, labeled slides or specimens to laboratory; giving to any designated co-worker.
138*	During course of interaction with any patient, observing symptoms or behavior, or noting concerns mentioned by patient, which should be reported to Dr. or RN to aid in patient's care or diagnosis; reporting verbally.
139*	Assessing results of Time Test (TB) after checking that correct amount of time has elapsed, by examining patient's arm and comparing raised area to given standards (such as chart) to determine positive or negative results; recording on patient's chart, and informing Dr. if positive or if in doubt.
140*	Instructing any patient or an accompanying adult in how to perform test for sugar in urine with reagent tablet method and how to keep record of results, by demonstrating and explaining; recording on patient's chart.
141*	Testing a stool specimen for blood by use of filter paper, tablet and water, comparing color results with color on chart, and recording results of comparison on patient's chart.
142*	Administering rectal medication for any patient, according to Dr.'s orders, using finger cot, and recording on patient's chart.
143*	On Dr.'s orders, obtaining urine from any female patient, by use of female catheter under sterile conditions; using antiseptic or sterile equipment, inserting catheter, massaging patient to help void urine, and, if ordered, measuring urine, delivering for inspection or preparing for laboratory analysis and/or recording amount obtained and abnormal appearance on patient's chart.

Table A.1 . EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
144	Preparing a hot water sterilizer for use by filling with water and/or emptying water; and disconnecting at end of day.
145*	Preparing soiled equipment for sterilization in autoclave by washing with soap and water, drying, inspecting for damage or missing parts, wrapping in autoclave paper and taping.
146*	Setting autoclave for sterilizing equipment and inserting wrapped packets for sterilizing.
147*	Preparing a patient for a pelvic examination and preparing materials, based on Dr.'s orders, including instruments and materials for slides; taking wet prep slides to lab; preparing other slides for lab, including use of fixative, and labeling; taking or having slides taken to lab.
148	Receiving any patient's questions (by phone) about home care such as diet, medication, treatment, answering in terms of LPN capabilities, referring to patient's chart; consulting Dr. for questions beyond LPN capability, and relaying responses to patient by phone.
149*	Preparing treatment or equipment materials for use by sterilizing in hot water sterilizer for appropriate amount of time, removing, and wrapping in sterile barrier.
150*	Checking supplies of medications and vaccines on hand and/or in MD emergency bag for expired dates; assembling those expired for return to pharmacy.
151*	Preparing treatment rooms for use by dusting surfaces with alcohol-soaked cloth, checking, replenishing and arranging examination and treatment supplies, linens, sterile equipment for use as needed; replacing supplies and equipment at end of day and making sure all equipment is turned off.
152*	On Dr.'s orders inoculating any patient with smallpox vaccine using prepackaged vaccine and monovacc needle; explaining aftercare to patient and recording on patient's chart.
153*	Assisting any Dr. or RN by handing examination or treatment supplies, materials or equipment as ordered and/or turning equipment on, off or adjusting as required, or on orders.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 23 of 35

Task No.*	Task Name
154	Contributing opinions, judgments, information and feelings about care and treatment of patients being discussed; participating in discussions of functioning of Unit, based on experience as LPN in Unit.
155*	Obtaining a specimen of urine, by explaining to patient how to provide and/or preparing specimen for lab by covering, labeling with identification information and arranging for delivery to lab with requisition slip.
156*	Removing old dressing and/or irrigating and/or cleaning and dressing a wound or burn according to Dr.'s orders, using sterile procedures, using saline solution or sterile water for irrigation; antiseptic for cleansing (or saline solution if burn); leaving open or dressing as ordered; using prescribed medication; wrapping as tightly as ordered, using sterile gauze (vaseline gauze if burn), and tape or ace bandage or sling; explaining care to patient; recording condition of wound and/or care given in patient's chart.
157*	Checking a patient's chart for entry of results of lab tests; obtaining or accounting for missing information by checking with lab or medical records.
158	Informally assessing the work of subordinates (medical assistants), by deciding to observe performance, deciding whether to give informal training through demonstration of procedures or explanations, or both, and informally reporting on subordinates' performance when asked.
159	At Dr.'s request, arranging for a new appointment after a patient has broken an appointment with Dr., by calling patient and/or discussing reasons for visit with Dr. and then patient, or arranging to have a Family Health Worker see patient to assess problems and arrange visit; recording.
160*	Escorting any patient and accompanying adult with child from one area of institution (Center) to another, delivering patient's chart and other forms and introducing patient to designated co-worker in new area.
161*	Weighing and measuring any patient, using balance scale and ruler for adults and infant scale for infants; and recording on patient's chart and/or on anthropometric chart for children.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 24 of 35

Task No.	Task Name
162*	Irrigating any patient's ear with warm water or peroxide using an ear syringe according to Dr.'s orders; reporting returns if requested.
163	Preparing materials for special procedures to be done by Dr. such as bone marrow puncture, spinal tap, amniocentesis, suturing; checking with Dr. on completeness; making sure materials are sterile for use and/or that kits are not expired.
164*	Filling out anticipated forms needed in a patient's visit with identification information called for; giving to co-workers who will use them.
165	Deciding whether a subordinate has been excessively late and/or absent or abusive of lunch hours; if so, deciding whether to report this to supervisor; if so, making report orally at that time, or when asked.
166	Assembling suture materials for Dr. about to suture lacerations of any patient, assembling kind of suture material, needle and medication as asked for by Dr.
167	Preparing and administering an intramuscular or subcutaneous injection to any patient according to Dr.'s order, including getting medication from pharmacy or supplies on hand, preparing medication, filling syringe (from prepackaged or prepared medication), choosing where to inject, disinfecting area before and after injecting, and recording and signing patient's chart to indicate injection was administered.
168	Determining which throat cultures have been in incubator long enough, based on wall chart showing times and dates entered, and taking cultures which are ready to MD on duty for interpreting.
169	Collecting Dr.'s written assessment of throat culture slides; recording results in record book; arranging to have appointment made for patient if positive results.
170	Assisting any patient in dressing and/or undressing.
171	Upon being asked, giving opinion on whether any patient waiting in emergency room is in need of immediate attention of Dr., by talking with patient, looking at condition and checking chart, if available. If emergency, escorting patient in at once and notifying MD on duty.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 25 of 35

Task No.*	Task Name
172	On Dr.'s orders, taking a fresh stool specimen from any adult patient by using finger cot and inserting finger into rectum; testing stool specimen for blood by using paper, tablet and water; comparing color results with color on chart; showing results to MD.
173	Preparing a patient for suturing under Dr.'s orders and supervision by cleaning area with antibacterial agent, shaving hairy area using razor and antibacterial lathering agent; standing by during suturing; clipping suture material with scissors after Dr. is done.
174	Washing used specula or other equipment with soap and water, dipping in alkaline solution, and placing in sterilizer.
175	Preparing treatment sets or other equipment for sterilization by collecting parts, wrapping in gauze and brown autoclave paper, taping packet, placing in autoclave and setting timer.
176	Removing sterilized packets of equipment from autoclave and storing in appropriate, designated locations.
177	Treating any patient for ringworm according to Dr.'s orders by cleaning area with antibacterial agent, shaving hairy area and applying prescribed ointment.
178	Preparing sterilized treatment equipment for use by removing from sterilizer, wrapping in sterile barrier paper and storing in appropriate locations.
179	Preparing an intravenous bottle for use by Dr. according to orders by filling bottle with prescribed medication, labeling bottle with medication, if prescribed, and time; attaching to IV pole, placing near patient and Dr.; placing sterile needles on tray near Dr.
180	Preparing a tray with materials to be used by Dr. in drawing blood for a lab work-up; labeling test tubes as samples are filled, and informing patient or accompanying adult of where to take samples and disposition sheet (to lab).
181	Preparing a tray with equipment to be used by Dr. for nasal packing and for examination, and placing, at Dr.'s orders, near Dr. and patient.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
182	Preparing patient for gastric lavage and/or bringing and setting up suction machine for use by Dr. by rolling in, cleaning and attaching disposable catheter; turning machine on and off at Dr.'s orders; cleaning up afterwards and taking sample of material from container for Dr.'s inspection, if called for.
183	Inducing vomiting in any patient on Dr.'s orders by administering a vomit-inducing liquid; cleaning up afterwards.
184	Locking (if night shift) or unlocking (if day shift) closet(s) or refrigerator where special equipment or medications are stored.
185	Assisting in administration of oxygen to any patient by wheeling in oxygen tank, placing mask on patient, turning on machine and adjusting oxygen flow under Dr.'s supervision, according to Dr.'s orders.
186	Explaining the layout, storage locations, and work procedures of the work area (Emergency Room) to a new (somewhat subordinate) co-worker (medical assistant).
187	Administering medication taken orally to any patient by filling Dr.'s orders from available supplies, or pharmacy (using Dr.'s prescription); serving liquid in calibrated cup; recording or signing patient's chart to indicate that medicine was administered.
188	On Dr.'s orders, administering a cold bath or cold towels to any patient in order to reduce fever, using ice cubes and cold water in tub for child; cold towels for adults; periodically, checking and reporting patient's temperature to Dr.
189	On Dr.'s orders, treating any patient for lice by shampooing with medicated shampoo and warm water, and sometimes shaving head with razor and blade.
190*	Assisting any disabled patient in moving to and from objects such as wheelchair, bed, toilet by using arms and hands to provide support and/or transporting in wheelchair to designated locations if appropriate.
191	Applying a splint to any patient according to Dr.'s orders, bending to prescribed angle, using gauze and tape, ace bandage, board and/or sling, as required.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
192	Assisting in a cardiac or other emergency by bringing in emergency cart, preparing patient on Dr.'s orders for EKG, applying leads, and/or on Dr.'s orders preparing injections, IV bottle, or helping as ordered; afterwards having emergency cart re-equipped and returning cart.
193	Preparing any patient and materials for a bone marrow puncture or spinal tap, on Dr.'s orders, by laying out appropriate pre-packed kit, cleansing appropriate body part with antiseptic, draping patient with sheet if appropriate, and informing Dr. when patient is ready.
194	Administering medication in the form of eye or ear drops to any patient, according to Dr.'s orders, and signing patient's chart to indicate that medication was administered.
195	Applying an eye patch for any patient on Dr.'s orders.
196	On Dr.'s orders giving any patient a prepared fleet enema kit and instructing patient in its home use.
197	Going over with any patient and reinforcing Dr.'s orders on diet, prohibited food, procedures for taking medication, home care, or return visit.
198	Administering medication taken orally to any patient by filling Dr.'s orders from available supplies, having Dr. approve, serving liquid in calibrated cup, and recording on patient's chart. Explaining side effects, if appropriate.
199*	Preparing any patient for examination by having (or assisting in) clothes removed; taking and recording vital signs (temp., blood pressure; pulse; respiration); informing Dr. patient is ready.
200*	Applying hot and/or cold compresses or other materials as prescribed by Dr. to indicated parts of any patient's body for prescribed periods of time or until desired effect is obtained, taking precautions not to burn skin; recording treatment and results on patient's chart.
201*	On Dr.'s or RN's orders, administering a cold water or alcohol rub to any patient in order to reduce fever; using towels or sheet; periodically checking temperature; recording on patient's chart.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 28 of 35

Task No.*	Task Name
202	On RN's or Dr.'s orders, providing introductory information on contraception techniques by showing devices and explaining to any patient how each is used, effectiveness, advantages and disadvantages and answering questions.
203*	Explaining the nature and purpose of a special diet to any patient or encouraging patient to continue to follow it and/or helping to come up with substitutes in the ethnic foods of the patient that are compatible with diet; recording on patient's chart.
204*	Informing (orienting) new employees, new patients, and any accompanying adults, about the facilities of the institution (Center) through descriptive explanation and/or a tour, covering procedures, functions and arrangement of the place, introducing employees when deemed appropriate.
205	Giving any patient an enema according to Dr.'s orders, observing amount and color of expelled material, and recording on patient's chart.
206	Examining any bedridden or immobilized patient for presence of bed sores and if found giving decubital care using lotion on skin and PhisoHex on open sores; recording check and treatment on patient's chart.
207	Deciding whether to test and/or testing plaster in patient's home for lead, by using prepared solution; making appointment for examination for children if results are positive and notifying Poison Control, and filling out form on lead poisoning for patient's chart.
208	Asking any patient for a stool specimen, explaining how it is taken, collecting the specimen, labeling it, and bringing it to the lab.
209	Taking the temperature of any patient and, if there is fever, administering an alcohol bath, notifying Dr. if patient is an infant or fever does not go down; recording on patient's chart.
210	Bathing any adult, bedridden patient with soap and water or PhisoHex, drying, applying powder and/or lotion; recording on patient's chart.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
211	Instructing a new mother in how to bathe and diaper a new infant, by demonstrating and explaining; recording on patient's chart.
212	Assisting any patient except infants to bathe in tub or shower; recording on patient's chart.
213	Treating a baby for cradle cap according to Dr.'s orders by washing with oil, possibly brushing, and washing with water; recording on patient's chart.
214	Treating a patient with itching scalp by giving shampoo according to Dr.'s orders; recording on patient's chart.
215	Instructing a new mother in how to prepare an infant's formula, either in a standard manner or according to Dr.'s orders, by demonstrating and explaining including boiling of formula, sterilizing of bottles, capping of bottles, setting out of filled bottles to cool; recording on patient's chart.
216	Instructing a new mother who will bottle feed an infant on how to bottle feed and burp the infant by explaining and demonstrating; recording on patient's chart.
217	Deciding whether to prepare food for and/or feed any patient except an infant; preparing and/or feeding patient; recording on patient's chart.
218*	Irrigating and/or cleaning and/or dressing a minor wound or minor burn according to Dr.'s orders; or deciding whether to change bandage using saline solution or sterile water for irrigating, antiseptic for cleansing (saline solution if burn); leaving open or dressing as ordered, using prescribed medication; wrapping as tightly as ordered, using sterile gauze (vaseline gauze if burn), and tape or ace bandage or sling; explaining care to patient; recording on patient's chart.
219	Finding out about the circumstances of any patient's appointment to go to any social agency, accompanying the patient so as to provide help, clarification and moral support; recording on patient's chart.
220	Answering a phone; calling the correct person or, if appropriate, writing message on pad and placing on correct desk.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 30 of 35

Task No.*	Task Name
221	Giving an oral presentation about the institution (Center) and about good general health practices to group of community people such as school children, by speaking, sometimes using visual aids and/or distributing literature.
222	Duplicating record forms (such as patient's medical records, in desired quantities on duplicating machine (such as Xerox).
223	Deciding whether to make unoccupied bed; making bed by stripping of soiled linen, making up bed with clean linen obtained, disposing of soiled linen in appropriate place; recording on patient's chart.
224	Deciding whether to make bed containing a bed ridden patient; making occupied bed by obtaining clean linen, stripping bed and making bed by rolling patient; disposing of soiled linen in appropriate place; recording on patient's chart.
225	Checking family's or patient's drugs and medications for old or left-over medication; and explaining to family the need to throw out old medications or those left over after a course of treatment is over; recording on patient's chart.
226	Deciding on giving or reinforcing basic sex information, contraception information or making patient aware of availability of abortion information by explaining or giving literature on basic sex information, reinforcing contraceptive information or referring to RN, or referring patient to RN for abortion information; recording on patient's chart.
227 ^a	Preparing bag for home visit based on plans for day.
228	Teaching a TB patient and/or members of his household proper daily health practices; recording on patient's chart.
229	Changing any patient's colostomy bag on Dr.'s orders; irrigating tube and cleansing patient; recording on patient's chart.
230	Preparing materials for use in a catheter irrigation.

^a This task was created as a "dummy" task when it was discovered that the number 227 was not used in assigning code numbers to tasks. It is actually a preparatory element for most performers.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
231*	Delivering forms or supplies and/or picking up and returning with forms or supplies, conversing with co-workers if appropriate.
232	Helping any patient requiring assistance in walking by providing support with arms or hands, if without support devices, or reinforcing instructions already given on use of walker, cane, or crutches.
233	Irrigating the eye of any non-infant patient with a foreign body in eye or irritation by using an eye cup and water or cotton balls and water and/or instructing the patient in how to do this for himself; recording on patient's chart.
234	Delivering medication to any adult patient or any person in charge of an infant or child patient and explaining how to take, how much and when, based on instructions on the medication; recording on patient's chart.
235*	Checking on current stock of supplies and forms and deciding what to request, based on experience on what should be on hand and usage; requesting supplies from supervisor or filling out request for supervisor's approval.
236	Deciding whether and when to discuss personal, social, or health problems with patient and/or members of family or household; discussing and providing information on agencies or other forms of help available; recording on patient's chart.
237	Deciding whether to discuss consumer problems with patient; advising patient and/or family or household on consumer protection and/or rights by using literature and information; advising on how to stretch money using information on good practice and available aids, and/or helping to design a family budget; recording on patient's chart.
238	Deciding whether any patient needs homemaking services, sometimes consulting with the nurse involved; deciding what homemaking services to provide, such as shopping, cooking, serving, feeding, cleaning, bathing; providing the service, using materials found in the home; recording on patient's chart.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 32 of 35

Task No.*	Task Name
239	Helping to select a family for a Family Health Team conference; explaining purpose and inviting family; preparing materials, notes and information; presenting the family's problems and background at the conference; participating in discussion of problems and helping to arrive at recommendations based on experience as Family Health Worker; recording recommendations reached.
240	Arranging for appointment for any patient at Center based on review of patient's chart or call from patient; notifying patient by mail or phone, or following up on broken appointment.
241	Showing job procedures and practices and providing job orientation to a new co-worker in the performer's own job title (Family Health Worker) sometimes under the supervision of a Nurse Practitioner.
242	Contributing to discussions and writing up forms in order to make the performer's job description more accurate in its reflection of the work done.
243	Taking vital signs (temperature, blood pressure, pulse rate, respiration rate) and recording on patient's chart; deciding if any are abnormal; if so, notifying Dr.
244	Teaching any member of household how to take a temperature by demonstration and explanation using oral and/or rectal thermometer, sometimes demonstrating on child, including how to care for and clean thermometer; recording on patient's chart.
245	On a newly assigned family's first visit explaining the Center, purpose of visit and role of performer (Family Health Worker; obtaining information needed to fill out Census form, medical and social background information form, and home evaluation form on home safety by oral questions and observation; recording on record of home visit form.
246	Reviewing intake information on family; discussing with Dr. and/or nurse to determine what diagnostic tests are needed; ordering tests by filling out lab slips and arranging for any other special procedures; deciding on order of importance of family problems; recording with suggestions on Problem List; deciding whether home visit or Center appointment is needed; recording or making appointment.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 33 of 35

Task No.*	Task Name
247	Finding out that any patient and family has moved from the Family Health Team's area; consulting with Dr. and filling out the proper request, either that patient should be retained for follow up care, or that family should be assigned to proper team and the reason; arranging for delivery of request form.
248	Conducting a routine prenatal examination of a pregnant patient under supervision by making health checks, discussing physical and emotional health, providing information and instruction on health practices, childbirth, available services, abortion; recording observations, informing Dr. or nurse of abnormal conditions; making appointment for visit if so decided.
249	Conducting a routine post partum examination of a new mother by checking vaginal stitches, breasts, vital signs, uterine fondus, asking about discharge, bleeding, health functions; providing instruction in care of stitches, breasts, how to deal with milk, breast feeding; recording observations, informing Dr. or nurse of abnormal conditions; making appointment for visit if so decided.
250	Conducting a routine neonate (newborn) examination by general inspection of spontaneous movement of extremities, parts of the body, reflexes, caring for umbilical stump; collecting information on feeding, stool, sleep; reinforcing mother in proper infant care; recording observations; informing Dr. or nurse of abnormal conditions; making appointment for visit if so decided.
251	Conducting a routine examination of any patient who is 6 months or over by taking vital signs, listening to chest, examining eyes, nose and throat; recording on patient's chart; informing Dr. or nurse of abnormal conditions; making appointment for visit if needed.
252	Conducting an examination and/or providing follow up care and/or reinforcement for any patient with a chronic disease by reinforcing Dr.'s orders on care, diet, medication; explaining tests to be taken; taking vital signs and providing special care as appropriate; recording on patient's chart; informing Dr. or nurse of change in condition; making appointment for visit if needed.
253	Following up on a patient discharged from a hospital by checking on his intake of medication, appointments for care, deciding whether transportation is needed and providing for transportation; notifying Dr. of any special problem; recording on patient's chart.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
p. 34 of 35

Task No.*	Task Name
254	Planning and writing out a weekly work schedule using information on the patients to be provided services by the performer, and coordinating with supervisor (Nurse Practitioner); leaving one copy for supervisor and retaining the other.
255	Contributing opinions, judgments, information and feelings about care and treatment of patients being discussed, based on experience as Medical Assistant; and participating in discussions of functioning of performer's Unit based on experience as Medical Assistant in Unit.
256	Administering prepacked liquid polio vaccine orally to any patient on Dr.'s orders from available supplies, serving liquid to adult, pouring for child, dropping with dropper into infant's mouth; recording on patient's chart.
257	Administering and recording a vision screening test to any patient, using Keystone vision testing machine or Snellin eye charts; referring patients to clinic if self-scoring results indicate less than perfect vision, and calling Dr. if serious disabilities are apparent.
258	Checking that any female patient who has had a contraceptive device prescribed understands how to use it and the possible side effects, by questioning patient and/or reinforcing, based on prepared instruction sheet.
259	At request of RN or MD, taking a partial social, family and/or medical history from any patient; asking only routine, predetermined questions, and recording by checking off or writing responses on forms or paper; giving to Dr. or RN.
260	Preparing a hypodermic needle for injection according to Dr.'s or RN's orders including preparing medication, filling syringe if not prepacked, aspirating and capping needle tip with sterile cap, placing for use and having Dr. or RN check medication and dosage.
261	Answering phone in Unit and notifying person being called or relaying message; calling Dr. if emergency; or making appointment for Dr. or RN; recording in appointment book, and on appointment slip for mailing.

Table A.1. EXTENDED TASK NAMES BY CODE NUMBER (continued)
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Task No.*	Task Name
262	Taking an electrocardiogram of any patient by preparing patient, giving appropriate exercises or using special equipment or leads if requested by Dr.; applying medium, taking readings using appropriate leads, calling a physician in an emergency; tearing off EKG strip, writing name of patient on it, clipping to patient's request form.
263	Cutting and mounting an EKG strip on a self-adhesive EKG chart; filling in patient information on front of chart and putting chart in designated place for delivery.
264	Ordering duplicate copies of forms (such as mounted EKG chart), by filling in order, clipping to material to be copied, and placing in pick up location.
265	Filing or pulling from files patient's records or data filed by patient's ID number or name.
266	Placing and arranging nondrug supplies (such as electrode pads, cotton balls) on labeled shelves in cabinet.
267*	Routinely cleaning or dusting the body of special machines (such as X-ray or EKG) and removable parts with cloth soaked in alcohol, domestic cleanser or with sponge and water.
268	Checking EKG machine for its supply of cardiograph paper and replacing roll when needed.
269*	Judging that special equipment such as X-ray film developing machine or EKG machine is out of order or needs repair; inspecting in order to describe problem and notifying supervisor or repair service as appropriate.
270	Demonstrating and explaining how an EKG is taken, selecting the amount of detail to fit the audience which can include school children, other visitors or Center (non EKG) personnel.
271	Deciding if an EKG reading looks abnormal and notifying appropriate Dr. if it looks "suspicious" or abnormal.
272	Checking level of developer and fixer solutions in designated barrels in automatic X-ray film developing machine, and refilling with developer and fixer solutions from bottles containing prepared solutions.
273	Turning on automatic equipment such as X-ray film developing machine for use by moving on-off switch to on position.

* Tasks with asterisk appear for more than one of the 12 titles studied.

Table A.2. DESCRIPTIONS OF SCALES ON WHICH PILOT TEST TASKS WERE RATED.
p. 1 of 7

Code No.	Scale Name and Description	Total Tasks ^a
1	<u>LOCOMOTION</u> The skill refers to the degree of body coordination required of a performer in the task being scaled. The skill involves the movement of the performer's body, torso or limbs through space in order to achieve predetermined standards of body movement or position. The level of the skill rises with the degree of body coordination required. This is determined by the complexity of the standards involved, or the complexity of external conditions which restrict motion. The scale level is not determined by requirements for strength or the level of knowledge which may be involved.	3
2	<u>OBJECT MANIPULATION</u> The skill refers to the degree of control required of a performer in directly manipulating objects in the task being scaled. The skill involves the direct handling of objects using fingers, hands, or limbs to achieve a predetermined standard. The level of the skill rises with the degree of precision required and with the fineness of the manipulation involved. When fingers, hands or limbs manipulate an object in order to manipulate another object, the skill level reflects the direct manipulation involving the fingers, hands or limbs. The scale level is not determined by the level of knowledge needed to manipulate objects.	197
3	<u>GUIDING OR STEERING</u> The skill refers to the degree of precision required of a performer in the task being scaled in moving an object over a predetermined pathway or holding steady on a moving target. The skill involves coordinating the performer's perceptions of external stimuli, which tell him his position, with his control of the object, in relation to the desired position or movement. The predetermined pathway or moving target may be actual or visualized. The level of the skill rises as the precision rises (or relative margin of error declines), and as the complexity of stimuli or the number of spatial directions or movements involved increase. The scale level is not determined by the degree of arm-hand steadiness involved, nor by the Figural Skills involved, nor by the level of knowledge required to accomplish the guiding or steering.	6

^a "Total Tasks" column refers to the number of tasks of the entire 273 that were rated above zero on each of the 16 Skill Scales. The 17th scale, the Knowledge Scale, was used for each knowledge category.

Table A.2.

DESCRIPTIONS OF SCALES ON WHICH PILOT
TEST TASKS WERE RATED. (continued)

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Code No.	Scale Name and Description	Total Tasks ^a
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|---|---|-----|
| 4 | <u>HUMAN INTERACTION</u> The skill refers to the degree of sensitivity to others required of the performer in the task being scaled. The skill involves the performer's perception of the relevant characteristics or state of being of the other person(s), the performer's attention to feedback as the interaction occurs, and the performer's appropriate modification of his behavior so as to accomplish the task. The skill is involved if the task requires any personal contact or interaction with others. The scale value of this skill rises as the degree of perceptiveness and sensitivity required of the performer rises, and as the subtlety of the feedback to which he must respond increases. | 242 |
|---|---|-----|

- | | | |
|---|--|----|
| 5 | <u>LEADERSHIP</u> The skill refers to the degree to which leadership in interacting with subordinates is required on the part of the performer in the task being scaled. The skill is involved when the performer's task requires him to interact with subordinates so as to affect their work performance in order for the performer to achieve goals related to the task. The subordinate relationship may be <u>de facto</u> as well as formal. | 81 |
|---|--|----|

The scale value of this skill rises in relation to three aspects of the performer's relationship with subordinates, relevant to the task situation. These are: (1) power over subordinates' conditions of employment; (2) clearness of channels of communication; and (3) clearness of subordinates' own relevant task procedures.

Low levels of Leadership are required when the performer has a great deal of power over the subordinates' conditions of employment, when the performer has very formal and clearly defined channels of communication with the subordinates relevant to the task situation, and when the tasks of the subordinates related to the performer's objectives are very clear cut, obvious, and require little discretionary judgment.

High levels of Leadership are required when the performer's power is low, when channels of communication are vague and undefined, and when the relevant subordinates' tasks are vague and require a great deal of discretionary judgment.

Table A.2.

DESCRIPTIONS OF SCALES ON WHICH PILOT
TEST TASKS WERE RATED. (continued)

p. 3 of 7

Code No.	Scale Name and Description	Total Tasks ^a
	The level of Leadership required for the task being scaled is determined by a combination of ratings of high, medium or low on the Leadership requirements determined by each of the three aspects.	
6	<u>ORAL USE OF A RELEVANT LANGUAGE</u> The skill refers to the level of precision in comprehension of heard language required of the performer in the task being scaled and to the level of precision required in conveying meaning orally in the task situation. (The language referred to is the one in common use for the task.) The level of this skill rises as the degree of precision in oral use of the language required in the task rises. The level of the scale is not determined by the knowledge reflected in the language used, nor by the skill of vocal delivery involved.	242
7	<u>READING USE OF A RELEVANT LANGUAGE</u> The skill refers to the level of comprehension required of the performer in his reading of written or printed material in the task being scaled. (The language referred to is the one in common use for the task.) The level of this skill rises as the degree of precision in the reading use of the language required in the task rises. The level of this scale is not determined by the knowledge reflected in the material which is read.	239
8	<u>WRITTEN USE OF A RELEVANT LANGUAGE</u> The skill refers to the level of precision required of the performer in conveying meaning in the task being scaled through the written use of language. (The language referred to is the one in common use for the task.) The level of this skill rises as the degree of precision in the written use of the language required in the task rises. The level of this scale is not determined by the knowledge reflected in the language used, nor by the level of knowledge of grammar or of literary form involved.	195

Table A.2.

DESCRIPTIONS OF SCALES ON WHICH PILOT
TEST TASKS WERE RATED. (continued)

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Code No.	Scale Name and Description	Total Tasks ^a
9	<u>DECISION MAKING ON METHODS</u> The skill refers to the degree of responsibility required of a performer with respect to decisions he must make about how he does the task being scaled. <u>How</u> the task is done (the method) includes what is done, when, in what order, what to use, and whom to involve. When the performer has any amount of latitude in deciding how to do a task, the skill is involved. The skill rises as the choice of methods in the task situation are less and less obvious or specified; the skill rises as the circumstances of the task from one instance to another are more and more varied. The level of this scale is not determined by the level of knowledge required to perform the task.	261
10	<u>DECISION MAKING ON QUALITY</u> The skill refers to the degree of responsibility required of the performer with respect to decisions he must make about the quality of the output he produces in the task being scaled. The scale is applied assuming acceptable levels of performance. The skill is involved when the performer has any effect on the quality of the task's output. The skill rises with the extent to which the performer can affect the output's quality. It is also affected by whether or not the output is subject to review or inspection by others before it is used. The level of this scale is not determined by the level of knowledge required to do the task.	265
11	<u>FIGURAL SKILLS</u> The skill refers to the level of complexity required of the performer in the task being scaled in dealing with figural aspects of materials. The skill involves the mental manipulation of figural properties in order to achieve a predetermined figural standard or objective. The figural aspects involved are limited to size, shape, form, or arrangement of materials in relation to space, whether the mental images involved or the materials dealt with are static or in motion. A figural standard would involve norms or criteria for size, shape, form or their arrangements in space. The skill rises as the complexity of the figural standards which must be achieved to perform the task rise, and as the complexity of the figural relationships whose aspects the performer must deal with rise.	122

Table A.2.

DESCRIPTIONS OF SCALES ON WHICH PILOT
TEST TASKS WERE RATED. (continued)

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Code No.	Scale Name and Description	Total Tasks ^a
12	<p><u>SYMBOLIC SKILLS</u> The skill is called for when the performer is required by the task being scaled to manipulate or use abstract symbols which are part of a system of symbolic notation. The skill involves the use of or manipulation of symbolic properties in such systems as numerical, musical, or code notations. The skill does not involve the semantic meaning or the figural properties of the symbols, or use of single, one-to-one symbols which are not part of a system of notation, or use of representational symbols. The skill rises with the degree of complexity of the manipulation or use made of the symbols and with the complexity of the symbolic properties of the symbols. The level of this scale is not determined by the level of knowledge or subject matter represented in the symbols, or by the figural properties of the symbols involved.</p>	64
13	<p><u>TAXONOMIC SKILLS</u> The skill is called for when the performer is required by the task being scaled to consciously apply or create conceptual classifying or organizing principles. The skill involves the application of mental processes to assign an unknown set of information to existing conceptual classes or systems, or the creation of conceptual classes or systems to suit the needs of the task. The skill does not involve the use of intuitive judgment, the use of simply figural or symbolic principles, or the one-to-one matching of obvious characteristics. When conceptual organizing or classifying principles are to be applied, the skill rises with the level of complexity of the principles. When conceptual organizing or classifying principles are to be created, the skill rises with the level of complexity of the purposes they must serve in the task.</p>	72

Table A.2.

DESCRIPTIONS OF SCALES ON WHICH PILOT
TEST TASKS WERE RATED. (continued)

p. 6 of 7

Code No.	Scale Name and Description	Total Tasks ^a
14	<u>IMPLICATIVE SKILLS</u> The skill is called for when a performer must come to conclusions or draw implications in the task being scaled which go beyond the memorization of cause-and-effect relationships or simple associations. The skill involves the application of mental processes to deal with a set of information, so as to draw non-routine conclusions or inferences, or to foresee consequences in the performance of the task. The skill rises with the degree of complexity of the information with which the performer must deal in drawing implications, and rises with the extent to which the kinds of information from which the conclusions or inferences are to be drawn vary from one instance of the task to another. The level of this scale is not determined by the seriousness of the errors in judgment which could be involved.	165
15	<u>FINANCIAL CONSEQUENCES OF ERROR</u> The skill refers to the degree of responsibility carried by a performer with respect to the financial damage which could result from errors in his performance of the task being scaled. The error whose consequences would be rated would be the most serious likely error to be expected from a performer qualified to do the task. The skill is involved if errors in performance of the task have any financial consequences involving the output, equipment, materials, time or other chargeable items. The level of this scale is not determined by the value of insurance claims or damage suits which would result from harm to humans.	215
16	<u>CONSEQUENCES OF ERROR TO HUMANS</u> The skill refers to the degree of responsibility carried by the performer with respect to the harm which could be done to humans as a result of errors in his performance of the task being scaled. The error whose consequences are rated would be the most serious likely error to be expected from a performer qualified to do the task. The skill is involved if errors in performance of the task result in any physical or mental harm to humans, including recipients, respondents, co-workers, or persons not directly related to the task. The performer is included. The level of this scale is not determined by any financial harm which could be done to persons.	267

Table A.2.

DESCRIPTIONS OF SCALES ON WHICH PILOT
TEST TASKS WERE RATED. (continued)
p. 7 of 7

Code No.	Scale Name and Description	Total Tasks ^a
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- ^a LEVELS OF KNOWLEDGE The scale refers to the level of knowledge in a given subject category required of the performer in the task being scaled. The knowledge categories which are required for each task are identified, and each category is rated with this scale. To be rated above zero on the scale the task must require knowledge beyond the simple memorization of the overt steps of the task. The scale rises with the amount of detailed knowledge which must be consciously applied and with the depth of understanding required in the subject area, in terms of its content, the structure of its ideas and its uses. "Detailed knowledge" covers such things as technical or special terms or facts. "Consciously applied" means that the performer is able to (but need not) articulate his use of the knowledge in the task situation.

- ^a "Total Tasks" column refers to the number of tasks of the entire 273 that were rated above zero on each of the 16 Skill Scales. The 17th scale, the Knowledge Scale, was used for each knowledge category.

Table A.3. KNOWLEDGE CATEGORIES REQUIRED BY ANY OF PILOT TEST TASKS^a
p. 1 of 16

Code No.	Category Name	Total Tasks
11200000	Genetics (For molecular and microbial genetics see Molecular biology.)	15
11731000	<u>Normal structure and function</u> (The categories listed below include both anatomy and physiology except where otherwise specified.)	89
11731100	Regional anatomy (Includes head and neck, thorax (back) and abdomen, pelvis and perineum, lower and upper limbs, and skeleton.)	104
11731200	Topographic anatomy (relation of external manifestations to internal structure and function, e.g. location of pressure points, surface appearance of joints, muscles and bones.)	78
11731300	Hematopoietic system (Includes blood, red and white blood cells, platelets, and bone marrow, liver and spleen in their blood forming function.)	25
11731400	Circulatory system (cardiovascular system) (Includes heart, veins, arteries, lymphatics.)	63
11731500	Respiratory system	57
11731600	Digestive system	44
11731610	Mouth, pharynx (digestive function), and esophagus (Includes tongue, teeth, and salivary glands.)	24
11731620	Stomach and small intestine (Includes duodenum, jejunum, ileum.)	23
11731630	Large intestine (colon) and rectum (Includes appendix, anus, and mesentery.)	25
11731640	Liver, biliary system, and pancreas (Includes gall bladder, cystic duct, bile duct, pancreatic duct, ampulla of Vater.)	21

^a Presented by order of appearance in HSMS Knowledge Classification System. The "Total Tasks" column refers to the number of the entire 273 tasks which require the category at some level on the HSMS Knowledge Scale.

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
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Code No.	Category Name	Total Tasks
11731700	Urinary system (Includes kidney, ureter, bladder, urethra, external genitalia.)	54
11731810	Muscles	40
11731820	Bones and joints (Includes ligaments and tendons)	40
11731831	Skin and sweat glands	48
11731832	Hair	11
11731833	Nails	12
11731900	Nervous system	44
11731910	Central nervous system (brain and spinal cord)	23
11731920	Peripheral nervous system	23
11731930	Autonomic nervous system (Includes sympathetic and parasympathetic nerves.)	24
11731941	Olfactory nerve and receptors	11
11731942	Taste buds	5
11731943	Eye and optic nerve	30
11731944	Touch, heat, cold and pain receptors	6
11731945	The ear (Note that this category excludes balance function.)	29
11731946	Kinesthetic receptors (Includes semicircular canals.)	9
11732100	Immunologic system (Includes immunological mechanisms, humoral and cellular factors.)	29
11732210	Endocrine glands and their hormone physiology (Includes pituitary, adrenal, thyroid, parathyroid, pineal, and pancreas, ovary and testes in their endocrine functions.)	35

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)

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Code No.	Category Name	Total Tasks
11732220	Reproduction	42
11732221	Conception and contraception	30
11732222	Male reproductive system	31
11732223	Female reproductive system (Includes the body changes associated with ovulation, conception and pregnancy, e.g. development of placenta.) (For development of the embryo see Growth and development.)	50
11732300	Homeostasis of fluids (Includes fluid and electrolyte balance.)	28
11732400	Metabolism	30
11733000	<u>Pathology</u> (abnormal function and structure) (Includes the etiologic and diagnostic aspects of disease.) (See also First aid for emergency treatment and care.)	99
11733100	Infective and parasitic diseases	63
11733200	Neoplasms (cancerous growths)	42
11733300	Endocrine, nutritional, and metabolic disorders	43
11733400	Disorders of blood and blood-forming organs	26
11733510	Disorders of the central nervous system	37
11733520	Disorders of the peripheral nervous system	33
11733530	Disorders of the autonomic nervous system	32
11733541	Disorders of the olfactory nerve and receptors	8
11733542	Disorders of the taste buds	5
11733543	Disorders of the eye and optic nerve	24
11733544	Disorders of touch, heat, cold and pain receptors	6
11733545	Disorders of the ear	20

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 4 of 16

Code No.	Category Name	Total Tasks
11733546	Disorders of kinesthetic receptors	6
11733600	Disorders of the circulatory system	52
11733700	Disorders of the digestive system	42
11733800	Disorders of the respiratory system	49
11733900	Disorders of the uro-genital system	54
11734100	Disorders of the skin and subcutaneous tissues	51
11734200	Disorders of the musculoskeletal system and connective tissues	37
11734300	Congenital abnormalities	29
11734400	Disorders and complications of pregnancy, childbirth and the puerperium	28
11734500	Perinatal morbidity and mortality (shortly before or after birth)	17
11734600	Burns	24
11734700	Poisoning	18
11734800	Shock and trauma	35
11735000	<u>Surgery</u>	30
11735100	Operative procedures (Also includes biopsy, removal of tumors, removal of organs, Caesarian section, removal of drains.)	22
11735200	Amputation and disarticulation	5
11735300	Repair surgery (Includes plastic surgery, pedicle revision, surgical graft, anastomosis, fistulization, open reduction, fixation, fusion, stabilization.)	9

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 5 of 16

Code No.	Category Name	Total Tasks
11735400	Introductory procedures (Includes injections, transfusion, irrigation, catheterization, intubation, tracheotomy.)	69
11735500	Endoscopy (direct visual observation of bronchi, esophagus, duodenum, colon with an endoscope)	15
11735600	Suture (Also includes ligature, suture materials.)	24
11735700	Manipulation (Includes application of plaster, splint or traction, dilation or stretching.)	20
11735800	Delivery methods for childbirth (Includes the circumstances governing the delivery method chosen such as abnormal presentation of baby (transverse section, breech), medical history of mother.) (For complications of childbirth caused by other conditions see Pathology, Normal structure and function.)	13
11736000	<u>Anesthesiology</u> (Includes open anesthetics, semiopen, insufflation, absorption, intravenous, infiltration, field and nerve block methods.) (For administering anesthesia see also Surgery.)	27
11737000	<u>First aid and care</u> (See also Pathology.)	46
11737100	Bandages, dressings, tourniquets and splints	39
11737200	Hemorrhage and bleeding and their arrest	45
11737300	Handling and transportation of the sick or wounded	55
11737400	Sprains, strains, fractures and their healing	21
11737500	Foreign bodies not involving wounds (in eye, throat)	21
11737600	Resuscitation	21
11737700	Wounds and their healing (Includes operative incisions.)	56

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 6 of 16

Code No.	Category Name	Total Tasks
11738000	Asepsis (concepts and techniques involved in achievement of sterile condition) (Includes concurrent and terminal disinfection during surgery, aspects of sterilization of implements and equipment such as autoclaving.)	105
11739000	<u>Community health and preventive medicine</u> (For health education see topics of instruction and EDUCATION.)	7
11739100	Treatment of social causes of illness (primary level of prevention) (See also SOCIAL SCIENCES.)	4
11739300	Rehabilitation and restoration of individual to community (tertiary level of prevention) (See also Behavioral processes and Rehabilitation medicine.)	2
11739430	Sanitation (establishment and maintenance of environmental conditions which are favorable to health) (Includes methods of waste disposal, sanitary considerations for food and drink, insect and rodent control.) (For clinical sterilization techniques see Asepsis.)	33
11741000	Epidemiology (relationship of factors which determine the frequencies and distributions of infectious processes, diseases or other pathological states (e.g. lead poisoning) in human communities) (Includes immunization.) (See also Asepsis and Pathology.)	35
11742100	<u>Physical therapy</u> (Excludes speech therapy and hearing therapy.) (See also Mental retardation in the BEHAVIORAL SCIENCES and Special education in EDUCATION.)	16
11742110	Kinesiology and body mechanics (See also Musculo-skeletal system; for disability see Disorders of the musculo-skeletal system.)	4
11742120	Disability evaluation (testing and measurement to determine the extent and type of physical disability) (For psychological tests see BEHAVIORAL SCIENCES.)	5

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 7 of 16

Code No.	Category Name	Total Tasks
11742131	Amputation adjustments (Includes artificial limbs and their use and artificial organs [where relevant] and their use.) (Note that this category excludes surgical procedures.)	7
11742132	Corrective, preventive and compensatory adjustments (Includes supportive and self-help devices and their use, such as wheel chairs, trusses, crutches and other mechanical devices and special measures to restore functioning, prevent malfunction (e.g. after surgery), and to make use of partial functions.)	28
11742133	Special post-disease and chronic disease therapy (special corrective procedures for the after-effects of diseases such as heart disease, rheumatic fever, epilepsy, blindness, diabetes, pulmonary tuberculosis.)	25
11742141	Hydrotherapy (Includes whirlpool baths.)	1
11742143	Heat therapy (Includes diathermy, infra-red, ultraviolet.)	5
11742148	Exercise (corrective therapeutic and normal) (Includes active, passive and stretching, active assistance, isometric, progressive resistive (proprioceptive, isotonic), coordination and balance, breathing, pre-natal and post partum, gait-training and locomotion exercise.)	20
11742210	Speech therapy	1
11742220	Hearing therapy	1
11743000	<u>Nutrition and dietetics</u> (See also CHEMISTRY, Normal structure and function, Cell biology.)	35
11743100	Biochemistry of nutrients (Includes carbohydrates, fats, proteins, minerals, vitamins, water.)	20

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 8 of 16

Code No.	Category Name	Total Tasks
11743200	Physiology of nutrients (Includes carbohydrates, fats, proteins, minerals, vitamins, water.)	20
11743300	Nutritional qualities of foods (Includes losses resulting from processing, the relationship between foods their preparation and their nutritive content.)	25
11743400	Nutritional requirements and diets (Includes normal and therapeutic nutrition for adults, pregnancy and lactation, infancy, childhood, adolescence, and geriatrics.)	46
11744100	Oral hygiene and care (See also Asepsis.)	17
11744200	Oral surgery (surgical and adjunctive treatment of diseases, injuries, and defects of the mouth, the jaws, and associated structures) (Includes fillings, pedontics, and corrective devices such as dentures, crowns, bridges.) (See also Surgery.)	2
11745000	<u>Growth and development</u> (Note that age ranges are approximate.) (For psychological aspects of growth and development see Behavioral processes.)	65
11745100	Embryology and prenatal period (For experimental embryology see Cell Biology.) (See also Chemical teratogenesis.)	22
11745200	Neo-natal period (birth through first month)	20
11745300	Infant growth (second month through second year)	15
11745400	Childhood growth	17
11745500	Adolescent growth	16
11745600	Adulthood	15
11745700	Old age (geriatrics)	12
11800000	<u>Microbiology</u> (Includes physiology of microorganisms such as protozoa, fungi, algae, bacteria.) (For parasitology see Infective and parasitic diseases.)	26

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 9 of 16

Code No.	Category Name	Total Tasks
11900000	<u>Molecular biology</u> (Includes viruses; the genetics of bacteria, and molecular and microbial genetics.) (For biophysical aspects of molecular biology see CHEMISTRY.)	1
12100000	<u>Cell biology</u> (cytology and histology)	7
12110000	Cell morphology (structure)	4
12120000	Cell physiology	2
12200000	<u>Radiology</u> (See also PHYSICS, ENGINEERING AND TECHNOLOGY, and CHEMISTRY.)	24
12210000	Radiobiology (general and injurious effects of high energy radiation on living organisms) (Includes the therapeutic aspects of nuclear medicine.)	16
12220000	Radiographic (X-ray) analysis (Includes positioning to achieve interpretable results of x-ray and fluoroscopy and the interpretation of the structures shown in the images produced.)	35
12230000	Radioisotope scanning (Includes the diagnostic aspects of nuclear medicine.)	2
12300000	<u>Pharmacology</u> (the study of drugs, i.e. chemical compounds or non-infectious biological substances which may be administered as an aid in the diagnosis, treatment or prevention of disease, for the relief of pain or suffering or to control or improve any physiological or pathological condition) (See also Normal structure and function, Pathology, Cell biology and CHEMISTRY.)	61
12311000	Drug receptor theory (Includes bond types in drug receptor interaction.)	7
12312000	Drug structure-activity relationships	7
12313000	Drug dose-response relationships	19

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
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Code No.	Category Name	Total Tasks
12314000	Non-receptor mediated drug action	7
12321000	Drug absorption (Includes physiochemical nature of the drug, physiochemical nature of absorbing membrane, route of administration.)	20
12322000	Drug distribution (Includes volume of distribution, drug-plasma protein interaction, drug-membrane interactions, drug deposition and storage.)	17
12323000	Drug excretion (Includes physiochemical nature of the drug, routes of elimination.)	15
12324000	Drug metabolism (Includes oxidation, reduction, hydrolysis, conjugation.)	7
12331000	Drug toxicity (Includes antidotal therapy.)	44
12332000	Drug idiosyncrasy and allergy pharmacogenetics (Includes increased sensitivity to drugs, decreased responsiveness to drugs, novel drug effects, etc. which are due to inherited physical characteristics.)	45
12333000	Drug resistance (of a non-genetic nature) (Includes mutational origins.) (For biochemical mechanisms, see CHEMISTRY.)	26
12334000	Drug tolerance and physical dependence (Includes homeostatic adjustment, cumulative effects, tolerance at the site of drug action.)	33
1233500	Drug synergism (presence of two or more drugs in the body having the same effects and the change in drug action this causes)	25
12336000	Chemical teratogenesis (special effects of drugs on the fetus during pregnancy)	10
12338000	Chemical carcinogenesis (the range of drugs which can induce tumors)	1

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 11 of 16

Code No.	Category Name	Total Tasks
12341100	Antibacterial and antifungal chemotherapy (Includes antiseptics and germicides, sulfonamides, penicillins, erythromycin, tetracyclines and broad spectrum antibiotics, streptomycin, sulfones, anti-fungal agents.)	36
12341200	Antiprotozoal/antimetazoal chemotherapy (Includes anti-malarials, amebicides, heavy metals, metal-binding agents, antimonials, anthelmintics.)	29
12341300	Cancer and virus chemotherapy (Includes alkylating agents, antimetabolites, steroids and enzymes, interferon induction.)	6
12341400	Local chemotherapy (Includes insecticides, repellents, and rodenticides, topical agents.)	18
12342100	Drugs acting on the cardiovascular system and smooth muscle (Includes cardiac glycosides, quinidine and anti-arrhythmia agents, coronary vasodilators, diuretics, agents inhibiting the renal tubules, fluids (such as blood, substitutes, electrolytes), agents in atherosclerosis, hypotensive agents, smooth muscle relaxants, smooth muscle stimulants.)	31
12342200	Drugs acting on the blood (Includes agents in anemia, anticoagulants and coagulants.) (For this pilot test also includes drugs acting on the immunologic system.)	28
12342300	Hormones and drugs acting on endocrine glands and accessory reproductive organs (Includes adrenal cortical hormones and corticotropin, thyroid and thyrotropic hormones, sex hormones and gonadotropins, anterior pituitary, agents in diabetes mellitus, parathyroid hormone and calcium metabolism.)	37
12342400	Vitamins and nutritional agents (Refers only to the pharmaceutical aspects.) (Includes vitamins, agents in nutrition and obesity.) (For nutritional and dietary aspects see Nutrition and dietetics.)	26
12342500	Drugs influencing growth and development	8

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 12 of 16

Code No.	Category Name	Total Tasks
12342600	Drugs for allergy, cough, vomiting and the dermato- mucosal surfaces (Includes anti-immune drugs, antitussives, antiemetics, dermatomucosal agents.)	29
12342700	Drugs acting on the gastrointestinal tract (Includes drugs effective in ulcer therapy, cathartics and laxatives, digestants and drugs useful in gall bladder disease.)	30
12342800	Drugs acting on the nervous system (For anesthetics see Anesthesiology.)	30
12342810	Drugs acting on the autonomic nervous system (Includes sympathetic stimulants, sympathetic depressants, parasympathetic stimulants, parasympathetic depressants, ganglionic agents.)	12
12342820	Drugs acting on the neuromuscular system (Includes myoneural agents, muscle relaxants.)	14
12342830	Drugs acting on the central nervous system (Includes narcotic analgesics, non-narcotic analgesics, sedatives and hypnotics, anticonvulsants, tranquil- izers, drug addiction, alcohol, psychomimetic agents, drugs affecting the mind.)	13
13900000	<u>Biochemical processes and mechanisms</u>	16
14111000	Solutions (mechanical, optical, colligative properties; dilute, normal, molar, saturated and supersaturated solutions, whether liquid, solid or gaseous phase) (For analytical tests relying upon one or more of these properties see Chemical analysis and prepara- tion of samples.)	5
14121000	Mechanical analysis (tests of mechanical properties of matter) (Includes gravimetrics, weight and specific gravity, strength, hardness, brittleness, ductility; microscopic analysis of physical properties.) (See also Descriptive physics for physical knowledge of properties.)	1

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 13 of 16

Code No.	Category Name	Total Tasks
14128000	Separation methods in analysis (Includes selective absorption, distillation and evaporation, extraction by solvents, separation by ion exchange, chromatography and diffusion analysis, precipitation methods.)	5
15212100	Electric circuit theory (Includes Ohm's law, Kirchhoff's laws, impedance, inductance, resistance, ammeters, voltmeters, potentiometers, bridges, alternating current circuits, direct current circuits, wave-guides, transmission lines.)	10
15214200	Optics (Includes electromagnetic radiation, spectra: infrared, light, ultraviolet; x-ray radiation, polarization of light, reflection and refraction, black-body radiation, lasers, radiation from an oscillating charge distribution.)	11
15315000	Optical properties (Includes transparency, index of refraction, prism action, filters, double refraction, dispersion, absorptive edges, fluorescence, phosphorescence; geometrical optics (ray tracing), Snell's law, image formation, focal points, correction of an optical system.) (See also Optics of Classical wave theory and Interaction with radiation.)	11
24130000	Electronics	1
41521200	Infant and preschool intelligence and their measurement	3
41522000	Differential abilities and aptitudes and their measurement (Includes tests of sensory capacities, motor functions, mechanical aptitudes, clerical aptitudes, artistic aptitudes, musical aptitudes, literary appreciation, creativity, reasoning.)	4
41523000	Achievement and achievement measurement (Includes tests of General Educational Development, California Achievement Tests, Iowa Tests of Basic Skills, Stanford Achievement Tests, proficiency examinations, performance evaluation, High School Equivalency, Scholastic Aptitude Tests, Graduate Record Examinations, licensure examinations.)	2

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 14 of 16

Code No.	Category Name	Total Tasks
41610000	Sensation and perception	4
41642000	Sex drives (Includes conditions of arousal of, selective and directional behavior of, satiation and gratification of sex drives.)	4
41650000	Emotions (Includes conditions of arousal of emotions, disruptive and adaptive aspects of emotions, mood change.)	3
41660000	<u>Development and growth of behavioral processes of the individual</u> (See also Normal structure and function and Growth and development.)	21
41666100	Infant behavioral development (Includes mother-child interaction, adaptive behavior.)	12
41666200	Childhood behavioral development	9
41666300	Adolescent behavioral development	8
41666400	Young adulthood behavioral development	6
41666500	Adult behavioral development	4
41666600	Old age behavioral development	4
41690000	<u>Psychopathology</u> (For Neurological disorders see Pathology.)	36
41691000	Mental retardation (See also Pathology in BIOLOGICAL SCIENCES.)	12
41692000	Organic brain syndrome (See also Pathology in BIOLOGICAL SCIENCES.)	9
41693000	Psychoses (Includes schizophrenia, affective disorders, paranoid states.) (Excludes psychoses of organic brain syndromes.)	9
41694000	Neuroses	9

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 15 of 16

Code No.	Category Name	Total Tasks
41695100	Personality disorders (Includes personality disorders such as the obsessive-compulsive, asthenic, passive-aggressive personality.) (Note that this category excludes neuroses and psychoses.)	4
41695200	Disorders involving addictive behavior (Includes alcoholism, drug dependence.) (See also Pharmacology.)	13
41696000	Psychosomatic disorders (psychophysiological disorders)	11
41697000	Transient situational disturbances (temporary psycho-pathological disturbances due to acute situational stress)	12
41710000	<u>Psychotherapy and counseling</u>	19
41720000	Organic therapy (Includes chemotherapy, insulin and sub-insulin shock therapy, electroshock therapy.) (See also Pharmacology.) (For surgical treatment see Surgery, Normal structure and function.)	4
41884000	<u>Social service administration and policy</u> (See also ECONOMICS and POLITICAL SCIENCE when applicable; see also Psychotherapy and counseling.)	21
41884100	Social services for the poor or indigent, administration and policy (Includes welfare.)	10
41884200	Health services administration and policy (Includes public health and family health services, hospital-based services.)	26
41884300	Educational and training services administration and policy (For Methods of education and training see EDUCATION.)	9
41884400	Employment services administration and policy	9
41884500	Legal services administration and policy	10
41884600	Child care services administration and policy	10

Table A.3.

KNOWLEDGE CATEGORIES REQUIRED BY ANY
OF PILOT TEST TASKS^a (continued)
p. 16 of 16

Code No.	Category Name	Total Tasks
41884700	Recreational services administration and policy	9
41884800	Special services for the aged or infirm administration and policy	10
41884900	Consumer protection services administration and policy (See also ECONOMICS.)	10
41885100	Social agencies (public and private) administration and policy	13
42300000	Systems of content presentation (Includes procedures such as lecture, symposium, panel, forum, role-playing, case study, demonstration, colloquium, audio-visual techniques, programmed instruction, micro-labs and laboratory methods.)	3
42630000	Professional and graduate education	3
43700000	Consumer economics (Includes consumer protection, business practices related to consumer interests, money management for the household.)	4
65620000	Mechanics of writing English (Includes traditional (prescriptive) grammar, punctuation, spelling, bibliographic and footnote form.) (For mechanics of writing other languages see Languages; for the study of grammar see Linguistics.)	95
69214200	Spanish	1
72000000	CUISINE (cooking and baking) (Includes all of the types and techniques of food preparation; recipes, including regional or special cuisines.) (For the effects of preparation on nutritional content see Nutrition and dietetics.)	3

^a Presented by order of appearance in HSMS Knowledge Classification System. The "Total Tasks" column refers to the number of the entire 273 tasks which require the category at some level on the HSMS Knowledge Scale.

Table A.4.

SKILLS AND KNOWLEDGE CATEGORIES
REQUIRED FOR TASKS OF FACTOR ONE
(Surgery, Diagnosis and Prescription Specialty: 15 Tasks)
p. 1 of 9

Category Number	Category Name ^a	Total * Tasks
2	Object Manipulation	15
4	Human Interaction	15
5	Leadership	* 15
6	Oral Use of a Relevant Language	15
7	Reading Use of a Relevant Language	14
8	Written Use of a Relevant Language	14
9	Decision Making on Methods	15
10	Decision Making on Quality	15
11	Figural Skills	* 15
12	Symbolic Skills	* 15
13	Taxonomic Skills	* 15
14	Implicative Skills	* 15
15	Financial Consequences of Error	15
16	Consequences of Error To Humans	15
11200000	Genetics	7
11731000	Normal structure and function	* 15
11731100	Regional anatomy	* 15
11731200	Topographic anatomy	* 15
11731300	Hematopoietic system	* 12
11731400	Circulatory system	* 15

^a See Tables A.2 and A.3 for fuller descriptions.

* Asterisk designates variable determining factor at $\pm .41$ or higher.

Table A.4.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR ONE (continued)
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Category Number	Category Name ^a	Total * Tasks
11731500	Respiratory system	* 15
11731600	Digestive system	* 15
11731610	Mouth, pharynx (digestive function), esophagus	* 12
11731620	Stomach and small intestine	* 12
11731630	Large intestine (colon) and rectum	* 12
11731640	Liver, biliary system, and pancreas	* 12
11731700	Urinary system and external genitalia	* 15
11731810	Muscles	* 15
11731820	Bones and joints	* 14
11731831	Skin and sweat glands	* 14
11731832	Hair	3
11731833	Nails	3
11731900	Nervous system	* 15
11731910	Central nervous system (brain and spinal cord)	* 14
11731920	Peripheral nervous system	* 14
11731930	Autonomic nervous system	* 14
11731941	Olfactory nerve and receptors	4
11731942	Taste buds	3
11731943	Eye and optic nerve	* 13
11731944	Touch, heat, cold and pain receptors	4
11731945	The ear (excluding balance function)	* 13
11731946	Kinesthetic receptors	4

Table A.4.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR ONE (continued)
p. 3 of 9

Category Number	Category Name ^a	Total * Tasks
11732100	Immunologic system	* 13
11732210	Endocrine glands and their hormone physiology	* 14
11732220	Reproduction	* 14
11732221	Conception and contraception	9
11732222	Male reproductive system	7
11732223	Female reproductive system	* 14
11732300	Homeostasis of fluids	* 14
11732400	Metabolism	* 15
11733000	Pathology	* 15
11733100	Infective and parasitic diseases	* 14
11733200	Neoplasms (cancerous growths)	* 14
11733300	Endocrine, nutritional, and metabolic disorders	* 15
11733400	Disorders of blood and blood-forming organs	5
11733510	Disorders of the central nervous system	* 15
11733520	Disorders of the peripheral nervous system	* 14
11733530	Disorders of the autonomic nervous system	* 15
11733541	Disorders of the olfactory nerve and receptors	3
11733542	Disorders of the taste buds	3
11733543	Disorders of the eye and optic nerve	5
11733544	Disorders of touch, heat, cold and pain receptors	4
11733545	Disorders of the ear	5
11733546	Disorders of kinesthetic receptors	4

Table A.4.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR ONE (continued)
p. 4 of 9

Category Number	Category Name ^a	Total * Tasks
11733600	Disorders of the circulatory system	* 15
11733700	Disorders of the digestive system	* 15
11733800	Disorders of the respiratory system	* 14
11733900	Disorders of the uro-genital system	* 14
11734100	Disorders of the skin and subcutaneous tissues	* 13
11734200	Disorders of the musculoskeletal system and connective tissues	* 14
11734300	Congenital abnormalities	8
11734400	Disorders and complications of pregnancy, childbirth, puerperium	8
11734500	Perinatal morbidity and mortality	5
11734600	Burns	4
11734700	Poisoning	4
11734800	Shock and trauma	* 15
11735000	Surgery	* 15
11735100	Operative procedures	* 11
11735200	Amputation and disarticulation	3
11735300	Repair surgery	5
11735400	Introductory procedures	* 15
11735500	Endoscopy	* 10
11735600	Suture	* 11
11735700	Manipulation	* 11
11735800	Delivery methods for childbirth	5

Table A.4.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR ONE (continued)
p. 5 of 9

Category Number	Category Name ^a	Total * Tasks
11736000	Anesthesiology	* 11
11737000	First aid and care	* 14
11737100	Bandages, dressings, tourniquets and splints	* 11
11737200	Hemorrhage and bleeding and their arrest	* 15
11737300	Handling and transportation of the sick or wounded	7
11737400	Sprains, strains, fractures and their healing	4
11737500	Foreign bodies not involving wounds	3
11737600	Resuscitation	* 9
11737700	Wounds and their healing	* 15
11738000	Asepsis	* 15
11739000	Community health and preventive medicine	1
11739430	Sanitation	3
11741000	Epidemiology	6
11742100	Physical therapy	4
11742120	Disability evaluation	2
11742131	Amputation adjustments	4
11742132	Corrective, preventive and compensatory adjustments	5
11742133	Special post-disease and chronic disease therapy	5
11742143	Heat therapy	3
11742148	Exercise	7
11743000	Nutrition and dietetics	* 15
11743100	Biochemistry of nutrients	* 14

Table A.4.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR ONE (continued)
p. 6 of 9

Category Number	Category Name ^a	Total * Tasks
11743200	Physiology of nutrients	* 14
11743300	Nutritional qualities of foods	2
11743400	Nutritional requirements and diets	* 13
11744100	Oral hygiene and care	4
11745000	Growth and development	* 15
11745100	Embryology and prenatal period	* 8
11745200	Neo-natal period	3
11745400	Childhood growth	3
11745500	Adolescent growth	5
11745600	Adulthood	5
11745700	Old age (geriatrics)	4
11800000	Microbiology	6
12100000	Cell biology	2
12110000	Cell morphology	2
12120000	Cell physiology	1
12200000	Radiology	8
12210000	Radiobiology	4
12220000	Radiographic (X-ray) analysis	* 13
12300000	Pharmacology	* 15
12311000	Drug receptor theory	5
12312000	Drug structure-activity relationships	5
12313000	Drug dose-response relationships	* 15

Table A.4.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR ONE (continued)
p. 7 of 9

Category Number	Category Name ^a	Total * Tasks
12314000	Non-receptor mediated drug action	5
12321000	Drug absorption	* 15
12322000	Drug distribution	* 13
12323000	Drug excretion	* 13
12324000	Drug metabolism	5
12331000	Drug toxicity	* 15
12332000	Drug idiosyncrasy and allergy pharmacogenetics	* 15
12333000	Drug resistance (of a non-genetic nature)	* 14
12334000	Drug tolerance and physical dependence	* 14
12335000	Drug synergism	* 15
12336000	Chemical teratogenesis	5
12341100	Antibacterial and antifungal chemotherapy	* 14
12341200	Antiprotozoal/antimetazoal chemotherapy	* 14
12341400	Local chemotherapy	6
12342100	Drugs acting on the cardiovascular system and smooth muscle	* 14
12342200	Drugs acting on the blood and immunologic system	* 14
12342300	Hormones and drugs acting on endocrine glands and accessory reproductive organs	* 15
12342400	Vitamins and nutritional agents	* 14
12342500	Drugs influencing growth and development	3

Table A.4.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR ONE (continued)
p. 8 of 9

Category Number	Category Name ^a	Total * Tasks
12342600	Drugs for allergy, cough, vomiting and the dermato- mucosal surfaces	* 14
12342700	Drugs acting on the gastrointestinal tract	* 14
12342800	Drugs acting on the nervous system	* 15
12342810	Drugs acting on the autonomic nervous system	4
12342820	Drugs acting on the neuromuscular system	5
12342830	Drugs acting on the central nervous system	4
13900000	Biochemical processes and mechanisms	* 13
14111000	Solutions	1
14128000	Separation methods in analysis	1
41642000	Sex drives	3
41650000	Emotions	3
41660000	Development and growth of behavioral processes of the individual	3
41690000	Psychopathology	6
41691000	Mental retardation	4
41692000	Organic brain syndrome	3
41693000	Psychoses	4
41694000	Neuroses	5
41695200	Disorders involving addictive behavior	6
41696000	Psychosomatic disorders	* 7
41697000	Transient situational disturbances	* 6
41710000	Psychotherapy and counseling	3

Table A.4.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR ONE (continued)
p. 9 of 9

Category Number	Category Name ^a	Total * Tasks
41884200	Health services administration and policy	4
42630000	Professional and graduate education	2
65620000	Mechanics of writing English	* 15

Total: 14 skills and 158 Knowledge Categories

^a See Tables A.2 and A.3 for further descriptions.

* Asterisk designates variable determining factor at ± 1.41 or higher.

Table A.5.

SKILLS AND KNOWLEDGE CATEGORIES
REQUIRED FOR TASKS OF FACTOR TWO
(Pediatric Specialty in Diagnosis and Prescription: 11 Tasks)
p. 1 of 9

Category Number	Category Name ^a	Total * Tasks
2	Object Manipulation	9
4	Human Interaction	11
5	Leadership	11
6	Oral Use of a Relevant Language	11
7	Reading Use of a Relevant Language	11
8	Written Use of a Relevant Language	11
9	Decision Making on Methods	11
10	Decision Making on Quality	11
11	Figural Skills	10
12	Symbolic Skills	8
13	Taxonomic Skills	11
14	Implicative Skills	11
15	Financial Consequences of Error	11
16	Consequences of Error To Humans	11
11200000	Genetics	* 3
11731000	Normal structure and function	11
11731100	Regional anatomy	10
11731200	Topographic anatomy	10
11731300	Hematopoietic system	* 7
11731400	Circulatory system	11
11731500	Respiratory system	11

^a See Tables A.2 and A.3 for fuller descriptions.

* Asterisk designates variable determining factor at $\pm .41$ or higher.

Table A.5.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR TWO (continued)
p. 2 of 9

Category Number	Category Name ^a	Total * Tasks
11731600	Digestive system	11
11731610	Mouth, pharynx (digestive function), esophagus	5
11731620	Stomach and small intestine	5
11731630	Large intestine (colon) and rectum	5
11731640	Liver, biliary system, and pancreas	5
11731700	Urinary system and external genitalia	11
11731810	Muscles	11
11731820	Bones and joints	11
11731831	Skin and sweat glands	11
11731832	Hair	7
11731833	Nails	8
11731900	Nervous system	11
11731910	Central nervous system (brain and spinal cord)	6
11731920	Peripheral nervous system	6
11731930	Autonomic nervous system	6
11731941	Olfactory nerve and receptors	4
11731942	Taste buds	2
11731943	Eye and optic nerve	* 7
11731944	Touch, heat, cold and pain receptors	2
11731945	The ear (excluding balance function)	* 7
11731946	Kinesthetic receptors	5
11732100	Immunologic system	* 11

Table A.5.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR TWO (continued)
p. 3 of 9

Category Number	Category Name ^a	Total * Tasks
11732210	Endocrine glands and their hormone physiology	11
11732220	Reproduction	10
11732221	Conception and contraception	* 8
11732222	Male reproductive system	* 10
11732223	Female reproductive system	10
11732300	Homeostasis of fluids	7
11732400	Metabolism	9
11733000	Pathology	11
11733100	Infective and parasitic diseases	11
11733200	Neoplasms (cancerous growths)	10
11733300	Endocrine, nutritional, and metabolic disorders	11
11733400	Disorders of blood and blood-forming organs	* 11
11733510	Disorders of the central nervous system	11
11733520	Disorders of the peripheral nervous system	* 11
11733530	Disorders of the autonomic nervous system	11
11733541	Disorders of the olfactory nerve and receptors	3
11733542	Disorders of the taste buds	2
11733543	Disorders of the eye and optic nerve	* 11
11733544	Disorders of touch, heat, cold and pain receptors	2
11733545	Disorders of the ear	* 10
11733546	Disorders of kinesthetic receptors	2
11733600	Disorders of the circulatory system	11

Table A.5.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR TWO (continued)
p. 4 of 9

Category Number	Category Name ^a	Total * Tasks
11733700	Disorders of the digestive system	* 11
11733800	Disorders of the respiratory system	11
11733900	Disorders of the uro-genital system	11
11734100	Disorders of the skin and subcutaneous tissues	11
11734200	Disorders of the musculoskeletal system and connective tissues	* 11
11734300	Congenital abnormalities	* 9
11734400	Disorders and complications of pregnancy, childbirth, puerperium	7
11734500	Perinatal morbidity and mortality	6
11734600	Burns	* 9
11734700	Poisoning	* 9
11734800	Shock and trauma	8
11735000	Surgery	4
11735100	Operative procedures	1
11735400	Introductory procedures	8
11735500	Endoscopy	3
11735600	Suture	6
11735700	Manipulation	5
11735800	Delivery methods for childbirth	1
11736000	Anesthesiology	2
11737000	First aid and care	9
11737100	Bandages, dressings, tourniquets and splints	7

Table A.5.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR TWO (continued)
p. 5 of 9

Category Number	Category Name ^a	Total * Tasks
11737200	Hemorrhage and bleeding and their arrest	8
11737300	Handling and transportation of the sick or wounded	* 9
11737400	Sprains, strains, fractures and their healing	* 8
11737500	Foreign bodies not involving wounds	* 7
11737600	Resuscitation	5
11737700	Wounds and their healing	10
11738000	Asepsis	10
11739000	Community health and preventive medicine	1
11739100	Treatment of social causes of illness	2
11739430	Sanitation	* 8
11741000	Epidemiology	* 11
11742100	Physical therapy	* 6
11742120	Disability evaluation	1
11742132	Corrective, preventive and compensatory adjustments	* 8
11742133	Special post-disease and chronic disease therapy	* 10
11742148	Exercise	* 7
11742210	Speech therapy	1
11742220	Hearing therapy	1
11743000	Nutrition and dietetics	6
11743100	Biochemistry of nutrients	5
11743200	Physiology of nutrients	5
11743300	Nutritional qualities of foods	* 10

Table A.5.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR TWO (continued)
p. 6 of 9

Category Number	Category Name ^a	Total * Tasks
11743400	Nutritional requirements and diets	* 10
11744100	Oral hygiene and care	* 9
11745000	Growth and development	11
11745100	Embryology and prenatal period	7
11745200	Neo-natal period	* 8
11745300	Infant growth (second month through second year)	* 9
11745400	Childhood growth	* 9
11745500	Adolescent growth	* 9
11745600	Adulthood	* 8
11745700	Old age (geriatrics)	* 5
11800000	Microbiology	* 6
12100000	Cell biology	2
12220000	Radiographic (X-ray) analysis	5
12300000	Pharmacology	11
12311000	Drug receptor theory	2
12312000	Drug structure-activity relationships	2
12313000	Drug dose-response relationships	2
12314000	Non-receptor mediated drug action	2
12321000	Drug absorption	2
12322000	Drug distribution	2
12323000	Drug excretion	2
12324000	Drug metabolism	2

Table A.5.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR TWO (continued)
p. 7 of 9

Category Number	Category Name ^a	Total * Tasks
12331000	Drug toxicity	11
12332000	Drug idiosyncrasy and allergy pharmacogenetics	11
12333000	Drug resistance (of a non-genetic nature)	* 11
12334000	Drug tolerance and physical dependence	* 11
12335000	Drug synergism	7
12336000	Chemical teratogenesis	3
12341100	Antibacterial and antifungal chemotherapy	10
12341200	Antiprotozoal/antimetazoal chemotherapy	* 10
12341300	Cancer and virus chemotherapy	6
12341400	Local chemotherapy	* 10
12342100	Drugs acting on the cardiovascular system and smooth muscle	9
12342200	Drugs acting on the blood and immunologic system	9
12342300	Hormones and drugs acting on endocrine glands and accessory reproductive organs	10
12342400	Vitamins and nutritional agents	* 9
12342500	Drugs influencing growth and development	5
12342600	Drugs for allergy, cough, vomiting and the dermatomucosal surfaces	* 9
12342700	Drugs acting on the gastrointestinal tract	* 9
12342800	Drugs acting on the nervous system	8
12342810	Drugs acting on the autonomic nervous system	3
12342820	Drugs acting on the neuromuscular system	4

Table A.5.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR TWO (continued)
p. 8 of 9

Category Number	Category Name ^a	Total * Tasks
12342830	Drugs acting on the central nervous system	3
13900000	Biochemical processes and mechanisms	2
41521200	Infant and preschool intelligence and measurement	2
41522000	Differential abilities and aptitudes and their measurement	3
41523000	Achievement and achievement measurement	2
41610000	Sensation and perception	3
41660000	Development and growth of behavioral processes of the individual	* 10
41666100	Infant behavioral development	8
41666200	Childhood behavioral development	8
41666300	Adolescent behavioral development	8
41666400	Young adulthood behavioral development	6
41666500	Adult behavioral development	4
41666600	Old age behavioral development	4
41690000	Psychopathology	* 11
41691000	Mental retardation	* 6
41692000	Organic brain syndrome	* 5
41693000	Psychoses	4
41694000	Neuroses	4
41695100	Personality disorders	4
41695200	Disorders involving addictive behavior	6
41696000	Psychosomatic disorders	* 4

Table A.5.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR TWO (continued)
p. 9 of 9

Category Number	Category Name ^a	Total * Tasks
41697000	Transient situational disturbances	* 6
41710000	Psychotherapy and counseling	* 7
41720000	Organic therapy	3
41884000	Social service administration and policy	3
41884100	Social services for the poor or indigent, administration and policy.	2
41884200	Health services administration and policy	5
41884300	Educational and training services administration, policy	3
41884400	Employment services administration and policy	2
41884500	Legal services administration and policy	2
41884600	Child care services administration and policy	3
41884700	Recreational services administration and policy	3
41884800	Special services for the aged or infirm administration, policy	2
41884900	Consumer protection services administration, policy	2
41885100	Social agencies (public and private) administration, policy	3
42300000	Systems of content presentation	3
42630000	Professional and graduate education	1
43700000	Consumer economics	2
65620000	Mechanics of writing English	10
<hr/> Total: 14 skills and 175 Knowledge Categories <hr/>		

^a See Tables A.2 and A.3 for fuller descriptions

* Asterisk designates variable determining factor at $\pm .41$ or higher.

Table A.6. SKILLS AND KNOWLEDGE CATEGORIES
REQUIRED FOR TASKS OF FACTOR THREE
(Specialty in Machine Related Care and Radiology: 26 Tasks)
p. 1 of 5

Category Number	Category Name ^a	Total * Tasks
2	Object Manipulation	20
3	Guiding or Steering	1
4	Human Interaction	23
5	Leadership	6
6	Oral Use of a Relevant Language	23
7	Reading Use of a Relevant Language	23
8	Written Use of a Relevant Language	17
9	Decision Making on Methods	25
10	Decision Making on Quality	26
11	Figural Skills	* 19
12	Symbolic Skills	11
13	Taxonomic Skills	* 7
14	Implicative Skills	19
15	Financial Consequences of Error	22
16	Consequences of Error To Humans	25
11200000	Genetics	2
11731000	Normal structure and function	14
11731100	Regional anatomy	12
11731200	Topographic anatomy	* 14
11731300	Hematopoietic system	3

^a See Tables A.2 and A.3 for fuller descriptions.

* Asterisk designates variable determining factor at $\pm .41$ or higher.

Table A.6.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR THREE (continued)
p. 2 of 5

Category Number	Category Name ^a	Total * Tasks
11731400	Circulatory system	3
11731500	Respiratory system	3
11731600	Digestive system	7
11731610	Mouth, pharynx (digestive function), esophagus	3
11731620	Stomach and small intestine	5
11731630	Large intestine (colon) and rectum	5
11731640	Liver, biliary system, and pancreas	4
11731700	Urinary system and external genitalia	5
11731820	Bones and joints	4
11731831	Skin and sweat glands	1
11731900	Nervous system	2
11731941	Olfactory nerve and receptors	2
11731943	Eye and optic nerve	3
11731945	The ear (excluding balance function)	3
11732210	Endocrine glands and their hormone physiology	1
11732220	Reproduction	3
11732221	Conception and contraception	1
11732222	Male reproductive system	2
11732223	Female reproductive system	4
11733000	Pathology	14
11733100	Infective and parasitic diseases	5
11733200	Neoplasms (cancerous growths)	6

Table A.6.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR THREE (continued)
p. 3 of 5

Category Number	Category Name ^a	Total * Tasks
11733300	Endocrine, nutritional, and metabolic disorders	4
11733400	Disorders of blood and blood-forming organs	3
11733510	Disorders of the central nervous system	2
11733520	Disorders of the peripheral nervous system	2
11733530	Disorders of the autonomic nervous system	2
11733541	Disorders of the olfactory nerve and receptors	2
11733543	Disorders of the eye and optic nerve	5
11733545	Disorders of the ear	2
11733600	Disorders of the circulatory system	4
11733700	Disorders of the digestive system	4
11733800	Disorders of the respiratory system	3
11733900	Disorders of the uro-genital system	4
11734100	Disorders of the skin and subcutaneous tissues	1
11734200	Disorders of the musculoskeletal system and connective tissues	3
11734300	Congenital abnormalities	6
11734400	Disorders and complications of pregnancy, childbirth, puerperium	2
11734600	Burns	1
11734700	Poisoning	1
11734800	Shock and trauma	2
11735000	Surgery	5
11735100	Operative procedures	2

Table A.6.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR THREE (continued)
p. 4 of 5

Category Number	Category Name ^a	Total * Tasks
11735200	Amputation and disarticulation	2
11735300	Repair surgery	2
11735400	Introductory procedures	5
11735500	Endoscopy	1
11735700	Manipulation	2
11737000	First aid and care	1
11737300	Handling and transportation of the sick or wounded	8
11737400	Sprains, strains, fractures and their healing	3
11737500	Foreign bodies not involving wounds	3
11738000	Asepsis	2
11742100	Physical therapy	2
11742110	Kinesiology and body mechanics	2
11742120	Disability evaluation	2
11742131	Amputation adjustments	3
11742132	Corrective, preventive and compensatory adjustments	3
11744200	Oral surgery	2
11745000	Growth and development	7
11800000	Microbiology	1
12100000	Cell biology	1
12200000	Radiology	* 12
12210000	Radiobiology	* 10
12220000	Radiographic (X-ray) analysis	* 13

Table A.6.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR THREE (continued)
p. 5 of 5

Category Number	Category Name ^a	Total * Tasks
12230000	Radioisotope scanning	2
12300000	Pharmacology	2
12321000	Drug absorption	2
12322000	Drug distribution	2
12331000	Drug toxicity	1
12332000	Drug idiosyncrasy and allergy pharmacogenetics	2
12336000	Chemical teratogenesis	1
12338000	Chemical carcinogenesis	1
12342100	Drugs acting on the cardiovascular system and smooth muscle	1
12342300	Hormones and drugs acting on endocrine glands and accessory reproductive organs	2
12342700	Drugs acting on the gastrointestinal tract	2
14111000	Solutions	3
15212100	Electric circuit theory	* 9
15214200	Optics	* 11
15315000	Optical properties	* 11
65620000	Mechanics of writing English	9

Total: 15 skills and 86 Knowledge Categories

^a See Tables A.2 and A.3 for fuller descriptions.

* Asterisk designates variable determining factor at $\pm .41$ or higher.

Table A.7.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FOUR
(Social Service and Counseling Specialty: 60 tasks)
p. 1 of 7

Category Number	Category Name ^a	Total * Tasks
2	Object Manipulation	16
4	Human Interaction	* 60
5	Leadership	14
6	Oral Use of a Relevant Language	* 60
7	Reading Use of a Relevant Language	* 57
8	Written Use of a Relevant Language	* 50
9	Decision Making on Methods	* 60
10	Decision Making on Quality	* 60
11	Figural Skills	7
12	Symbolic Skills	8
13	Taxonomic Skills	14
14	Implicative Skills	* 50
15	Financial Consequences of Error	38
16	Consequences of Error to Humans	60
11200000	Genetics	1
11731000	Normal structure and function	19
11731100	Regional anatomy	9
11731200	Topographic anatomy	3
11731400	Circulatory system	4
11731500	Respiratory system	6

^a See Tables A.2 and A.3 for fuller descriptions.

* Asterisk designates variable determining factor at ± 4.1 or higher.

Table A.7.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FOUR (continued)
p. 2 of 7

Category Number	Category Name ^a	Total * Tasks
11731600	Digestive system	3
11731700	Urinary system and external genitalia	5
11731810	Muscles	1
11731820	Bones and joints	1
11731831	Skin and sweat glands	2
11731900	Nervous system	3
11732100	Immunologic system	1
11732210	Endocrine glands and their hormone physiology	2
11732220	Reproduction	8
11732221	Conception and contraception	5
11732222	Male reproductive system	5
11732223	Female reproductive system	6
11733000	Pathology	* 30
11733100	Infective and parasitic diseases	7
11733200	Neoplasms (cancerous growths)	3
11733300	Endocrine, nutritional, and metabolic disorders	3
11733400	Disorders of blood and blood-forming organs	2
11733510	Disorders of the central nervous system	2
11733520	Disorders of the peripheral nervous system	1
11733530	Disorders of the autonomic nervous system	1
11733543	Disorders of the eye and optic nerve	1
11733600	Disorders of the circulatory system	4

Table A.7.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FOUR (continued)
p. 3 of 7

Category Number	Category Name ^a	Total * Tasks
11733700	Disorders of the digestive system	4
11733800	Disorders of the respiratory system	6
11733900	Disorders of the uro-genital system	6
11734100	Disorders of the skin and subcutaneous tissues	4
11734200	Disorders of the musculoskeletal system and connective tissues	3
11734300	Congenital abnormalities	2
11734400	Disorders and complications of pregnancy, childbirth, puerperium.	1
11734600	Burns	1
11734700	Poisoning	1
11735000	Surgery	2
11735100	Operative procedures	1
11735400	Introductory procedures	5
11736000	Anesthesiology	1
11737000	First aid and care	8
11737300	Handling and transportation of the sick or wounded	5
11737400	Sprains, strains, fractures and their healing	1
11737700	Wounds and their healing	6
11738000	Asepsis	9
11739000	Community health and preventive medicine	3
11739100	Treatment of social causes of illness	2

Table A.7.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FOUR (continued)
p. 4 of 7

Category Number	Category Name ^a	Total * Tasks
11739300	Rehabilitation and restoration of individual to community	2
11739430	Sanitation	14
11741000	Epidemiology	10
11742100	Physical therapy	4
11742110	Kinesiology and body mechanics	1
11742132	Corrective, preventive and compensatory adjustments	5
11742133	Special post-disease and chronic disease therapy	8
11742148	Exercise	3
11743000	Nutrition and dietetics	7
11743300	Nutritional qualities of foods	7
11743400	Nutritional requirements and diets	14
11744100	Oral hygiene and care	3
11745000	Growth and development	11
11745100	Embryology and prenatal period	2
11745200	Neo-natal period	1
11745300	Infant growth (second month through second year)	1
11745400	Childhood growth	1
11745500	Adolescent growth	2
11745600	Adulthood	1
11745700	Old age (geriatrics)	3
11800000	Microbiology	1
12200000	Radiology	1

Table A.7.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FOUR (continued)
p. 5 of 7

Category Number	Category Name ^a	Total * Tasks
12210000	Radiobiology	1
12220000	Radiographic (X-ray) analysis	1
12300000	Pharmacology	13
12331000	Drug toxicity	4
12332000	Drug idiosyncrasy and allergy pharmacogenetics	4
12334000	Drug tolerance and physical dependence	2
12335000	Drug synergism	1
12341100	Antibacterial and antifungal chemotherapy	1
12341200	Antiprotozoal/antimetazoal chemotherapy	1
12341400	Local chemotherapy	1
12342100	Drugs acting on the cardiovascular system and smooth muscle	1
12342300	Hormones and drugs acting on endocrine glands and accessory reproductive organs	4
12342800	Drugs acting on the nervous system	1
12342810	Drugs acting on the autonomic nervous system	2
12342820	Drugs acting on the neuromuscular system	1
12342830	Drugs acting on the central nervous system	2
41521200	Infant and preschool intelligence and their measurement	1
41522000	Differential abilities and aptitudes and their measurement	1
41610000	Sensation and perception	1

Table A.7.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FOUR (continued)
p. 6 of 7

Category Number	Category Name ^a	Total * Tasks
41642000	Sex drives	1
41660000	Development and growth of behavioral processes of the individual	7
41666100	Infant behavioral development	1
41666200	Childhood behavioral development	1
41690000	Psychopathology	* 15
41691000	Mental retardation	1
41692000	Organic brain syndrome	1
41693000	Psychoses	1
416952000	Disorders involving addictive behavior	1
41710000	Psychotherapy and counseling	* 7
41720000	Organic therapy	1
41884000	Social service administration and policy	* 18
41884100	Social services for the poor or indigent, administration and policy	7
41884200	Health services administration and policy	* 13
41884300	Educational and training services administration and policy	6
41884400	Employment services administration and policy	7
41884500	Legal services administration and policy	8
41884600	Child care services administration and policy	7

Table A.7.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FOUR (continued)
p. 7 of 7

Category Number	Category Name ^a	Total * Tasks
41884700	Recreational services administration and policy	6
41884800	Special services for the aged or infirm administration and policy	8
41884900	Consumer protection services administration and policy	8
41885100	Social agencies (public and private) administration and policy	* 9
43700000	Consumer economics	2
65620000	Mechanics of writing English	* 25
72000000	Cuisine (cooking and baking)	2
Total: 14 skills and 114 Knowledge Categories		

^a See Tables A.2 and A.3 for fuller descriptions

* Asterisk designates variable determining factor at $\pm .41$ or higher.

Table A.8.

SKILLS AND KNOWLEDGE CATEGORIES
REQUIRED FOR TASKS OF FACTOR FIVE
(Physical care and treatment specialty: 90 tasks)
p. 1 of 7

Category Number	Category Name ^a	Total * Tasks
1	Locomotion	3
2	Object Manipulation	* 89
3	Guiding or Steering	6
4	Human Interaction	90
5	Leadership	27
6	Oral Use of a Relevant Language	90
7	Reading Use of a Relevant Language	81
8	Written Use of a Relevant Language	67
9	Decision Making on Methods	88
10	Decision Making on Quality	90
11	Figural Skills	* 48
12	Symbolic Skills	14
13	Taxonomic Skills	14
14	Implicative Skills	44
15	Financial Consequences of Error	76
16	Consequences of Error To Humans	* 90
11731000	Normal structure and function	23
11731100	Regional anatomy	* 50
11731200	Topographic anatomy	* 33
11731300	Hematopoietic system	2

^a See Tables A.2 and A.3 for fuller descriptions.

* Asterisk designates variable determining factor at ± 4.1 or higher.

Table A.8.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FIVE (continued)
p. 2 of 7

Category Number	Category Name ^a	Total * Tasks
11731400	Circulatory system	* 26
11731500	Respiratory system	* 19
11731600	Digestive system	5
11731610	Mouth, pharynx (digestive function), esophagus	4
11731620	Stomach and small intestine	1
11731630	Large intestine (colon) and rectum	2
11731700	Urinary system and external genitalia	10
11731810	Muscles	13
11731820	Bones and joints	10
11731831	Skin and sweat glands	17
11731832	Hair	1
11731833	Nails	1
11731900	Nervous system	11
11731910	Central nervous system (brain and spinal cord)	2
11731920	Peripheral nervous system	2
11731930	Autonomic nervous system	3
11731941	Olfactory nerve and receptors	1
11731943	Eye and optic nerve	6
11731945	The ear (excluding balance function)	5
11732100	Immunologic system	2
11732210	Endocrine glands and their hormone physiology	2
11732220	Reproduction	1

Table A.8.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FIVE (continued)
p. 3 of 7

Category Number	Category Name ^a	Total * Tasks
11732221	Conception and contraception	1
11732222	Male reproductive system	2
11732223	Female reproductive system	7
11732300	Homeostasis of fluids	7
11732400	Metabolism	5
11733000	Pathology	22
11733100	Infective and parasitic diseases	14
11733200	Neoplasms (cancerous growths)	3
11733300	Endocrine, nutritional, and metabolic disorders	3
11733400	Disorders of blood and blood-forming organs	2
11733510	Disorders of the central nervous system	6
11733520	Disorders of the peripheral nervous system	3
11733530	Disorders of the autonomic nervous system	2
11733545	Disorders of the ear	1
11733600	Disorders of the circulatory system	14
11733700	Disorders of the digestive system	4
11733800	Disorders of the respiratory system	11
11733900	Disorders of the uro-genital system	7
11734100	Disorders of the skin and subcutaneous tissues	16
11734200	Disorders of the musculoskeletal system and connective tissues	5

Table A.8.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FIVE (continued)

p. 4 of 7

Category Number	Category Name ^a	Total * Tasks
11734300	Congenital abnormalities	1
11734400	Disorders and complications of pregnancy, child- birth, puerperium	4
11734500	Perinatal morbidity and mortality	2
11734600	Burns	10
11734700	Poisoning	3
11734800	Shock and trauma	11
11735000	Surgery	3
11735100	Operative procedures	3
11735400	Introductory procedures	* 35
11735500	Endoscopy	2
11735600	Suture	6
11735700	Manipulation	3
11735800	Delivery methods for childbirth	1
11736000	Anesthesiology	11
11737000	First aid and care	12
11737100	Bandages, dressings, tourniquets and splints	* 20
11737200	Hemorrhage and bleeding and their arrest	* 20
11737300	Handling and transportation of the sick or wounded	* 25
11737400	Sprains, strains, fractures and their healing	6
11737500	Foreign bodies not involving wounds	9
11737600	Resuscitation	8

Table A.8.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FIVE (continued)
p. 5 of 7

Category Number	Category Name ^a	Total * Tasks
11737700	Wounds and their healing	21
11738000	Asepsis	* 54
11739430	Sanitation	7
11741000	Epidemiology	1
11742110	Kinesiology and body mechanics	1
11742132	Corrective, preventive and compensatory adjustments	7
11742133	Special post-disease and chronic disease therapy	2
11742141	Hydrotherapy	1
11742143	Heat therapy	2
11742148	Exercise	1
11743000	Nutrition and dietetics	3
11743100	Biochemistry of nutrients	2
11743200	Physiology of nutrients	2
11743300	Nutritional qualities of foods	4
11743400	Nutritional requirements and diets	5
11745000	Growth and development	15
11745100	Embryology and prenatal period	1
11745200	Neo-natal period	* 5
11745300	Infant growth (second month through second year)	* 4
11745400	Childhood growth	4
11800000	Microbiology	1

Table A.8.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FIVE (continued)
p. 6 of 7

Category Number	Category Name ^a	Total * Tasks
12200000	Radiology	1
12220000	Radiographic (X-ray) analysis	3
12300000	Pharmacology	15
12313000	Drug dose-response relationships	3
12321000	Drug absorption	2
12331000	Drug toxicity	11
12332000	Drug idiosyncrasy and allergy pharmacogenetics	11
12333000	Drug resistance (of a non-genetic nature)	1
12334000	Drug tolerance and physical dependence	3
12335000	Drug synergism	3
12341100	Antibacterial and antifungal chemotherapy	9
12341200	Antiprotozoal/antimetazoal chemotherapy	4
12341400	Local chemotherapy	1
12342100	Drugs acting on the cardiovascular system and smooth muscle	6
12342200	Drugs acting on the blood and immunologic system	5
12342300	Hormones and drugs acting on endocrine glands and accessory reproductive organs	5
12342400	Vitamins and nutritional agents	2
12342600	Drugs for allergy, cough, vomiting and the dermatomucosal surfaces	5
12342700	Drugs acting on the gastrointestinal tract	4

Table A.8.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR FIVE (continued)
p. 7 of 7

Category Number	Category Name ^a	Total * Tasks
12342800	Drugs acting on the nervous system	5
12342810	Drugs acting on the autonomic nervous system	3
12342820	Drugs acting on the neuromuscular system	5
12342830	Drugs acting on the central nervous system	4
14111000	Solutions	1
15212100	Electric circuit theory	1
24130000	Electronics	1
41690000	Psychopathology	1
41884200	Health services administration and policy	1
65620000	Mechanics of writing English	22
72000000	Cuisine (cooking and baking)	1
Total: 16 skills and 118 Knowledge Categories		

^a See Tables A.2 and A.3 for fuller descriptions.

* Asterisk designates variable determining factor at ± 1.41 or higher.

Table A.9.

SKILLS AND KNOWLEDGE CATEGORIES
 REQUIRED FOR TASKS OF FACTOR SIX
 (Specialty in Female Care: 27 Tasks)
 p. 1 of 7

Category Number	Category Name (abbreviated) ^a	Total * Tasks
2	Object Manipulation	25
4	Human Interaction	24
5	Leadership	14
6	Oral Use of a Relevant Language	24
7	Reading Use of a Relevant Language	26
8	Written Use of a Relevant Language	23
9	Decision Making on Methods	27
10	Decision Making on Quality	27
11	Figural Skills	20
12	Symbolic Skills	11
13	Taxonomic Skills	14
14	Implicative Skills	26
15	Financial Consequences of Error	22
16	Consequences of Error To Humans	26
11200000	Genetics	* 3
11731000	Normal structure and function	16
11731100	Regional anatomy	21
11731200	Topographic anatomy	13
11731300	Hematopoietic system	2
11731400	Circulatory system	11

^a See Tables A.2 and A.3 for fuller descriptions.

* Asterisk designates variable determining factor at $\pm .41$ or higher.

Table A.9.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR SIX (continued)
p. 2 of 7

Category Number	Category Name (abbreviated) ^a	Total * Tasks
11731500	Respiratory system	10
11731600	Digestive system	8
11731610	Mouth, pharynx (digestive function), esophagus	1
11731620	Stomach and small intestine	2
11731630	Large intestine (colon) and rectum	2
11731640	Liver, biliary system, and pancreas	1
11731700	Urinary system and external genitalia	* 19
11731810	Muscles	6
11731820	Bones and joints	3
11731831	Skin and sweat glands	9
11731900	Nervous system	7
11731910	Central nervous system (brain and spinal cord)	3
11731920	Peripheral nervous system	3
11731930	Autonomic nervous system	3
11731943	Eye and optic nerve	2
11731945	The ear (excluding balance function)	2
11732100	Immunologic system	3
11732210	Endocrine glands and their hormone physiology	* 8
11732220	Reproduction	* 14
11732221	Conception and contraception	* 12
11732222	Male reproductive system	* 11
11732223	Female reproductive system	* 21

Table A.9.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR SIX (continued)
p. 3 of 7.

Category Number	Category Name (abbreviated) ^a	Total * Tasks
11732300	Homeostasis of fluids	3
11732400	Metabolism	5
11733000	Pathology	14
11733100	Infective and parasitic diseases	* 15
11733200	Neoplasms (cancerous growths)	10
11733300	Endocrine, nutritional, and metabolic disorders	* 8
11733400	Disorders of blood and blood-forming organs	2
11733510	Disorders of the central nervous system	5
11733520	Disorders of the peripheral nervous system	5
11733530	Disorders of the autonomic nervous system	4
11733543	Disorders of the eye and optic nerve	2
11733545	Disorders of the ear	2
11733600	Disorders of the circulatory system	10
11733700	Disorders of the digestive system	7
11733800	Disorders of the respiratory system	8
11733900	Disorders of the uro-genital system	* 22
11734100	Disorders of the skin and subcutaneous tissues	8
11734200	Disorders of the musculoskeletal system and connective tissues	4
11734300	Congenital abnormalities	* 5
11734400	Disorders and complications of pregnancy, childbirth, puerperium	* 9
11734500	Perinatal morbidity and mortality	* 6

Table A.9.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR SIX (continued)
p. 4 of 7

Category Number	Category Name (abbreviated) ^a	Total * Tasks
11734800	Shock and trauma	4
11735000	Surgery	5
11735100	Operative procedures	* 8
11735300	Repair surgery	2
11735400	Introductory procedures	10
11735500	Endoscopy	1
11735600	Suture	3
11735700	Manipulation	1
11735800	Delivery methods for childbirth	* 7
11736000	Anesthesiology	5
11737000	First aid and care	5
11737100	Bandages, dressings, tourniquets and splints	4
11737200	Hemorrhage and bleeding and their arrest	7
11737300	Handling and transportation of the sick or wounded	4
11737600	Resuscitation	1
11737700	Wounds and their healing	12
11738000	Asepsis	15
11739000	Community health and preventive medicine	2
11739100	Treatment of social causes of illness	1
11739430	Sanitation	1
11741000	Epidemiology	* 8
11742132	Corrective, preventive and compensatory adjustments	1

Table A.9.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR SIX (continued)
p. 5 of 7

Category Number	Category Name (abbreviated) ^a	Total * Tasks
11742148	Exercise	3
11743000	Nutrition and dietetics	7
11743100	Biochemistry of nutrients	1
11743200	Physiology of nutrients	1
11743300	Nutritional qualities of foods	3
11743400	Nutritional requirements and diets	7
11744100	Oral hygiene and care	1
11745000	Growth and development	14
11745100	Embryology and prenatal period	* 9
11745200	Neo-natal period	5
11745300	Infant growth (second month through second year)	1
11745500	Adolescent growth	3
11745600	Adulthood	3
11745700	Old age (geriatrics)	1
11800000	Microbiology	* 9
12100000	Cell biology	1
12110000	Cell morphology	1
12200000	Radiology	3
12210000	Radobiology	1
12220000	Radiographic (X-ray) analysis	2
12300000	Pharmacology	9
12313000	Drug dose-response relationships	2

Table A.9.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR SIX (continued)
p. 6 of 7

Category Number	Category Name (abbreviated) ^a	Total * Tasks
12321000	Drug absorption	2
12322000	Drug distribution	2
12323000	Drug excretion	2
12331000	Drug toxicity	5
12332000	Drug idiosyncrasy and allergy pharmacogenetics	7
12333000	Drug resistance (of a non-genetic nature)	2
12334000	Drug tolerance and physical dependence	5
12335000	Drug synergism	2
12336000	Chemical teratogenesis	2
12341100	Antibacterial and antifungal chemotherapy	6
12341200	Antiprotozoal/antimetazoal chemotherapy	3
12342100	Drugs acting on the cardiovascular system and smooth muscle	2
12342200	Drugs acting on the blood and immunologic system	2
12342300	Hormones and drugs acting on endocrine glands and accessory reproductive organs	7
12342400	Vitamins and nutritional agents	3
12342600	Drugs for allergy, cough, vomiting and the dermatomucosal surfaces	3
12342700	Drugs acting on the gastrointestinal tract	3
12342800	Drugs acting on the nervous system	4
13900000	Biochemical processes and mechanisms	2
14111000	Solutions	1

Table A.9.

SKILLS AND KNOWLEDGE CATEGORIES REQUIRED
FOR TASKS OF FACTOR SIX (continued)
p. 7 of 7

Category Number	Category Name (abbreviated) ^a	Total * Tasks
14128000	Separation methods in analysis	2
41642000	Sex drives	2
41650000	Emotions	1
41660000	Development and growth of behavioral processes of the individual	2
41666100	Infant behavioral development	3
41690000	Psychopathology	4
41691000	Mental retardation	1
41696000	Psychosomatic disorders	1
41710000	Psychotherapy and counseling	4
41884000	Social service administration and policy	1
41884100	Social services for the poor or indigent, administration and policy	1
41884200	Health services administration and policy	4
41885100	Social agencies (public and private) administration and policy	2
65620000	Mechanics of writing English	17
<hr/>		
Total: 14 skills and 127 Knowledge Categories		

^a See Tables A.2 and A.3 for fuller descriptions

* Asterisk designates variable determining factor at $\pm .41$ or higher.

Table A.10.

TASKS BY TITLE, LEVEL AND FACTOR
p. 1 of 11

Task Code		Task	
No.	Job Title and Abbreviated Name of Task	Level ^a	Factor ^b
RADIOLOGIST			
6	Reading, assessing X-rays and making recommendations.	6	Three
8	Answering MD quesitons about radiographs.	6	Three
1	Fluoroscopy of lower intestinal tract.	5	Three
3	Fluoroscopy of upper GI tract.	5	Three
4	Fluoroscopy portion of hysterosalpyngography.	5	Three
7	Assessing performance and output of X-ray workers.	5	Three
5	Instillation portion of hysterosalpyngography.	[4	Five or
		4	Six
2	Loading or unloading film in fluoroscopy machine.	1	U
INTERNIST			
9	Diagnosing med.condition,deciding care for non-child pt.	6	One
10	Deciding whether to proceed with care and administer medication to non-child patient.	6	One
21	Informally instructing interns, residents in pt. care.	6	One
27	Lectures to staff,students on health,medical subjects.	6	Two
25	Participating in Family Health Team conf.as internist.	6	Four
22	Responding to cardiac arrest call, providing care.	6	Five
37	Treatment of injuries.	6	Five
28	Emergency life support care.	[5	One or
		6	Five
29	Informally instructing subordinates in patient care.	5	Two
20	Reading and interpreting "stat" X-rays on request.	5	Three
30	Spinal tap from adult patient.	5	Five
31	Bone marrow specimen from adult patient.	5	Five
32	Suturing lacerations.	5	Five
24	Assessing urgency of follow up for no-show patients.	4	Two
12	Removing a wart from non-child patient.	4	Five
13	Setting up and teaching IV apparatus for non-child pt.	4	Five
17	Determining if suspect EKG reading is true or artifact.	4	Five
19	Determining allergy to dye for IVP X-rays.	4	Five
33	Removing sutures.	4	Five

^a Levels are as follows: 7 = Surgery; 6 = Professional II; 5 = Professional I; 4 = Semi-professional; 3 = Technician; 2 = Assistant; 1 = Aide.

^b Factors are as follows: One = Surgery, Diagnosis, Prescription; Two = Pediatric Diagnosis and Prescription; Three = Machine Related Care and Radiology; Four = Social Service and Counseling; Five = Physical Care and Treatment; Six = Female Care; U = Unassigned to a factor.

Table A.10.

TASKS BY TITLE, LEVEL AND FACTOR (continued)

p. 2 of 11

Task Code	Task	Level ^a	Factor ^b
No.	Job Title and Abbreviated Name of Task		
INTERNIST (continued)			
34	Incising and draining abcess or boil.	4	Five
11	Performing routine pelvic exam on adult female pt.	4	Six
23	Filling in forms and letters describing patient's medical condition for institutions.	3a	Four
26	Participating in committees at institution.	3a	Four
18	Drawing blood from non-child patient's vein.	3	Five
38	Removing foreign object from eye and/or ear.	3	Five
15	Determining presence of trichomonas on slide.	3	Six
16	Examining a slide for gonococci.	3	Six
14	Evaluating a skin specimen slide for fungi.	3	U
35	Examining spun-down urine sediment and supernate.	3	U
36	Examining blood slide.	3	U
OBSTETRICIAN-GYNECOLOGIST			
44	Cesarean section delivery.	7	One
47	Surgical excision of uterus, ovaries: hysterectomy through abdomen or vagina.	7	One
48	Vaginal plastic surgery or correction of vaginal hernia.	7	One
49	Ligation of fallopian tubes.	7	One
39	Diagnosing obs-gyn cond.;deciding care for female pt.	6	One
46	Saline abortion.	6	One
53	Instructing nurses in obs-gyn patient care.	6	One
43	Delivery of baby through vagina.	6	One or
		6	Six
27	Lectures to staff,students on health,medical subjects.	6	Two
42	Providing fertility assistance for female pt.	6	Six or
		4	One
40	Deciding whether to administer or change medication for female patient.	5	One
45	Curretage abortion.	5	One
41	Cauterize; cervical biopsy; polyps; IUD; retroflexed uterus: vaginal care.	5	Five or
		5	Six
50	Taking sample of amniotic fluid from pregnant patient.	5	Five or
		5	Six
54	Participating in Ob-gyn physician conference.	5	Six
24	Assessing urgency of follow up for no-show patients.	4	Two
33	Removing sutures.	4	Five
23	Filling in forms and letters describing patient's medical condition for institutions.	3a	Four
15	Determining presence of trichomonas on slide.	3	Six
51	Determine presence of monilia fungi on slide.	3	Six
52	Contributing to Family Health Team as Ob-gyn.	3	Six

Table A.10.

TASKS BY TITLE, LEVEL AND FACTOR (continued)
p. 3 of 11

Task Code	Task	Task	
		Level ^a	Factor ^b
No.	Job Title and Abbreviated Name of Task		
PEDIATRICIAN			
55	Diagnosing health and development and deciding care for pediatric patient.	6	Two
56	Deciding whether to go ahead with pediatric care and administer medication.	6	Two
63	Lectures, tests for Nurse Practitioners; delegation of duties considered.	6	Two
64	Informally training Nurse Practitioners; delegation of duties considered.	6	Two
37	Treatment of injuries.	6	Five
60	Spinal tap from pediatric patient.	6	Five
62	Bone marrow sample from pediatric patient.	6	Five
28	Emergency life support care.	6	Five or
		5	One
29	Informally instructing subordinates in patient care.	5	Two
32	Suturing lacerations.	5	Five
20	Reading and interpreting "stat" X-rays on request.	5	Three
61	Drawing blood from pediatric patient's vein.	5	Five
24	Assessing urgency of follow up for no-show patients.	4	Two
17	Determining if suspect EKG reading is true or artifact.	4	Five
33	Removing sutures.	4	Five
34	Incising and draining abscess or boil.	4	Five
59	Removing large blunt object from pharynx.	4	Five
23	Filling in forms and letters describing patient's medical condition for institutions.	3a	Four
26	Participating in committees at institution.	3a	Four
57	Removing foreign object from patient's ear.	3	Five
58	Preparing patient with foreign body in eye by applying dye strip.	3	Five
15	Determining presence of trichomonas on slide.	3	Six
16	Examining a slide for gonococci.	3	Six
14	Evaluating a skin specimen slide for fungi.	3	U
35	Examining spun-down urine sediment and supernate.	3	U
36	Examining blood slide.	3	U
NURSE PRACTITIONER			
120	Preparing, presenting classes for Family Health Workers; evaluating students.	5	Two
123	Instructing Family Health Workers or Nurse-interns in patient care.	5	Two
87	Evaluating or following routine prescribed treatment or care.	5	Five

Table A.10.

TASKS BY TITLE, LEVEL AND FACTOR (continued)

p. 4 of 11

Task Code	Task		
No.	Job Title and Abbreviated Name of Task	Level ^a	Factor ^b
NURSE PRACTITIONER (continued)			
91	Administering first aid in emergency.	5	Five
85	Providing post partum exam; evaluating condition.	5	Six
86	Prenatal exam of pregnant pt.;reporting abnormalities.	5	Six
89	Assessing condition of neonate and follow-up.	5	Six
83	Identifying obvious medical condition of adult and follow-up on care.	4	Two
88	Identifying juvenile's health condition.	4	Two
90	Post-hospital visit to chronic schizophrenic pt.	4	Four
101	Counseling in sex, contraception, VD, abortion.	4	Four or
		4	Six
102	Chronic or special care procedures for daily living reinforced or explained to patient.	4	Four
110	Answering patient's questions on care at RN level.	4	Four
114	Pragmatic counseling for patient on personal problems.	4	Four
115	Deciding on and arranging referral of pt. to agency.	4	Four
121	Participating in Family Health Team conference as Nurse Practitioner.	4	Four
125	RN committee work on health procedures.	4	Four
105	Irrigating,dressing,bandaging wound,burn as appropriate.	4	Five
84	Performing pelvic exam on adult female including specimens and follow-up.	4	Six
127	Work schedules planned and approved re patients.	3a	Four
100	Giving Denver Development Test for child.	3b	Four
111	Safety inspection of patient's home.	3b	Four
122	Coordinating multi-agency examinations for patient.	3b	Four
18	Drawing blood from non-child patient's vein.	3	Five
92	Removing thread stitches if appropriate.	3	Five
104	Administering common range of motion exercise on orders.	3	Five
109	Teaching irrigation, change, care of colostomy.	3	Five
112	Teaching diabetic to take medication or insulin injection.	3	Five
117	Irrigating and changing indwelling catheter.	3	Five or
		3	Six
118	Teaching patient irrigation of catheter.	3	Five or
		3	Six
119	Teaching infant's formula, feeding, bathing, diapering.	3	Five
103	Measuring, fitting diaphragm for female patient.	3	Six
107	Teaching patient self exam and care of breasts.	3	Six or
		1	Four
99	Administering Snellin eye test.	2	Three
94	Assessing tine test results after time lapse; follow-up on results.	2	Four
124	Checking and assessing subordinates' attendance.	2	Four
93	Applying prepackaged tine test for TB.	2	Five

Table A.10.

TASKS BY TITLE, LEVEL AND FACTOR (continued)
p. 5 of 11

Task Code	Task	Task	
		Level ^a	Factor ^b
No.	Job Title and Abbreviated Name of Task		
NURSE PRACTITIONER (continued)			
95	Tablet or dipstick urine test.	2	Five
96	Taking throat culture specimen; labeling.	2	Five
98	Obtaining clean catch urine specimen.	2	U
108	Teaching patient reagent or dipstick urine test.	2	U
106	Teaching patient postural drainage technique.	1	Four
113	Giving general reassurance to any patient.	1	Four
116	Deciding whether to provide patient with transportation.	1	Four
126	Approving or changing requisition forms of subordinates.	1	Four
97	Teaching or collecting specimen for pinworm test.	1	U
X-RAY TECHNICIAN AND LEAD X-RAY TECHNICIAN			
65	Taking X-rays with vertical or table X-ray machine.	3	Three
66	Taking IVP X-rays after allergy test.	3	Three
67	Taking lower GI series X-rays and scout film.	3	Three
68	Preparing patient and barium drink for fluoroscopy and taking upper GI X-rays.	3	Three.
81	Assessing quality of radiographs.	3	Three
73	Reassuring patient about X-ray procedures.	2	Three
74	Re-explaining pre X-ray home procedures to patient.	2	Three
79	Preparing barium enema.	2	Three
82	Calling repair company re X-ray equipment.	2	Three
77	Monitoring functions and work of X-ray dept.	2	Four
76	Collecting information about and ordering supplies.	2	U
71	Developing radiographs using hand developer.	1	Three
78	Preparing radiograph packet for interpretation.	1	Three
69	Using automatic developer for X-ray and spot films.	1	U
70	Preparing hand developing tank for X-ray film.	1	U
72	Loading X-ray film cassettes.	1	U
75	Translating Spanish-English conversation.	1	U
80	Preparing materials for IVP-dye allergy test.	1	U
LPN (Emergency Room and Unit)			
171	Assessing urgency of need for MD to see emergency pt.	4	Five
202	Giving introductory information on birth control devices on orders.	[4	Six or
		2	Four
148	Answering patients' phone questions at LPN capability.	3b	Four
154	Participating in Unit conference as LPN.	3b	Four
158	Informally evaluating and teaching subordinate Medical Assistants.	3b	Four
203	Reinforcing diet and making ethnic substitutes.	3b	Four

Table A.10.

TASKS BY TITLE, LEVEL AND FACTOR (continued)

p. 6 of 11

Task Code	Task	Task	
		Level ^a	Factor ^b
No.	Job Title and Abbreviated Name of Task		
	LPN (Emergency Room and Unit, continued)		
133	Preparing, administering, explaining subcutaneous or intramuscular injection as ordered.	3	Five
143	Obtaining urine specimen from female using catheter.	[3	Five or
		3	Six
156	Cleaning, dressing, bandaging wounds as ordered.	3	Five
167	Preparing and administering subcutaneous or intramuscular injections on orders.	3	Five
191	Applying splint on orders.	3	Five
192	Assisting in emergency by preparing materials.	3	Five
165	Monitoring subordinates' attendance; reporting excesses.	3	U
132	Checking and caring for equipment.	2	Three
131	Assigning staff to treatment rooms.	2	Four
159	Following up on no-show pt.; arranging new appointment.	2	Four
197	Reinforcing prescribed diet and medication.	2	Four
93	Applying prepackaged tine test for TB.	2	Five
95	Tablet or dipstick urine test.	2	Five
96	Taking throat culture specimen; labeling.	2	Five
142	Administering rectal medication as ordered.	2	Five
152	Administering prepacked smallpox vaccine on orders.	2	Five
161	Weighing and measuring patient and recording.	2	Five
162	Irrigating ear with solution as ordered.	2	Five
163	Preparing materials for special procedures.	2	Five
170	Assisting patient in dressing.	2	Five
173	Preparing patient for suturing.	2	Five
177	Treating patient for ringworm on Dr.'s orders.	2	Five
179	Preparing intravenous bottle.	2	Five
185	Assisting in administration of oxygen on orders.	2	Five
187	Giving oral medication to patient.	2	Five
188	Applying cold towels or ice bath to pt. for fever on orders.	2	Five
189	Treating patient for lice on orders by shampooing.	2	Five
190	Assisting patient to or from wheelchair.	2	Five
194	Administering eye or ear drops on orders.	2	Five
195	Applying eye patch on orders.	2	Five
198	Administering oral medication and explaining effects on Dr.'s orders.	2	Five
199	Preparing pt., taking vital signs before Dr.'s exam.	2	Five
200	Applying hot or cold compress on Dr.'s orders.	2	Five
201	Giving cold water or alcohol rub on Dr.'s orders.	2	Five
98	Obtaining clean catch urine specimen.	2	U
128	Deciding order for non-medicinal supplies.	2	U
129	Deciding order for non-narcotic supplies.	2	U
139	Assessing results of tine test.	2	U

Table A.10

TASKS BY TITLE, LEVEL AND FACTOR (continued)
p. 7 of 11

Task Code	Task	Task	
		Level ^a	Factor ^b
No.	Job Title and Abbreviated Name of Task		
	LPN (Emergency Room and Unit, continued)		
140	Teaching how to do urine test using tablet.	2	U
141	Testing stool specimen for blood using tablet.	2	U
134	Tallying information on services provided.	2	U
157	Checking chart for entry of lab results.	2	U
172	Taking stool specimen and testing for blood.	2	U
186	Explaining work area to new worker.	2	U
113	Giving general reassurance to any patient.	1	Four
138	Noticing and reporting relevant patient symptoms to Dr.	1	Four
204	Providing orientation tour of facilities and procedures at Center.	1	Four
153	Assisting Dr. in medical exam with materials.	1	Five
166	Assembling suture materials as ordered.	1	Five
180	Preparing tray for drawing blood; writing labels.	1	Five
181	Preparing tray for nasal packing.	1	Five
182	Preparing patient for gastric lavage and assisting.	1	Five
183	Inducing vomiting in patient on Dr.'s orders with medication.	1	Five
193	Preparing for bone marrow puncture on orders.	1	Five
75	Translating Spanish-English conversation.	1	U
130	Obtaining pharmaceuticals as ordered and storing.	1	U
135	Readying treatment room by wiping up and cleaning.	1	U
136	Checking and storing delivered supplies.	1	U
137	Delivering cultures and specimens to incubator or lab.	1	U
144	Preparing hot water sterilizer for use.	1	U
145	Preparing equipment for autoclave by washing, wrapping.	1	U
146	Setting autoclave.	1	U
147	Preparing patient for pelvic exam; preparing slides.	1	U
149	Sterilizing equipment in hot water sterilizer.	1	U
150	Checking medications for expiration dates.	1	U
151	Preparing treatment room by cleaning up and stocking supplies.	1	U
155	Obtaining urine specimen; preparing for lab.	1	U
168	Taking throat cultures to Dr. from incubator for assessment.	1	U
169	Collecting Dr.'s assessments of throat cultures.	1	U
160	Escorting patient within institution.	1	U
164	Filling out forms with ID information.	1	U
174	Washing and placing equipment in sterilizer.	1	U
175	Preparing equipment for autoclave by wrapping.	1	U
176	Removing sterilized equipment from autoclave; storing.	1	U
178	Wrapping sterile equipment removed from sterilizer.	1	U
184	Locking-unlocking narcotic supplies.	1	U
196	Giving patient enema kit and instructions for use.	1	U

Table A.10.

TASKS BY TITLE, LEVEL AND FACTOR (continued)

p. 8 of 11

Task Code	Task	Level ^a	Factor ^b
No.	Job Title and Abbreviated Name of Task		
FAMILY HEALTH WORKER			
91	Administering first aid in emergency.	5	Five
115	Deciding on and arranging referral of pt. to agency.	4	Four
248	Conducting routine prenatal exam.	4	Six
226	Giving basic sex education, contraception and abortion information.	4	Six or
		3b	Four
250	Conducting routine neonate examination.	4	Five or
		4	Six
236	Discussing personal, social health problems with pt.	3a	Four
239	Participating in Family Health Team conference as Family Health Worker.	3a	Four
203	Reinforcing diet and making ethnic substitutes.	3b	Four
219	Accompanying patient to any social agency.	3b	Four
237	Discussing consumer protection and helping patient with budgeting.	3b	Four
241	Providing job orientation to new co-worker Family Health Worker.	3b	Four
245	Orienting and taking intake information from new family.	3b	Four
249	Conducting routine post partum exam.	3b	Four or
		3	Six
252	Conducting routine exam of chronic disease pt.	3b	Four
218	Bandaging or changing bandage for minor wound as ordered.	3	Five
232	Helping any patient needing assistance in walking.	3	Five
243	Taking and recording vital signs; notifying MD of abnormalities.	3	Five
251	Conducting routine exam of any patient over six months.	3	Five
221	Making oral presentation on good health practices to community people.	2	Four
228	Teaching TB patient and family proper health practices.	2	Four
238	Deciding patient needs homemaking services and doing.	2	Four
240	Deciding and arranging appointment for pt. at Center.	2	Four
246	Reviewing intake information on family; assessing priority of problems.	2	Four
93	Applying prepackaged tine test for TB.	2	Five
95	Tablet or dipstick urine test.	2	Five
96	Taking throat culture specimen; labeling.	2	Five
190	Assisting patient to or from wheelchair.	2	Five
200	Applying hot or cold compress on Dr.'s orders.	2	Five
209	Giving alcohol bath for fever; reporting if no effect.	2	Five
210	Bathing any adult bedridden patient.	2	Five
205	Giving patient enema on doctor's orders.	2	Five
206	Examining, treating bedridden pt. for bed sores.	2	Five

Table A.10.

TASKS BY TITLE, LEVEL AND FACTOR (continued)
p. 9 of 11

Task Code	Job Title and Abbreviated Name of Task	Task	
		Level ^a	Factor ^b
FAMILY HEALTH WORKER (continued)			
212	Assisting any non-infant pt. to bathe or shower.	2	Five
215	Teaching how to prepare infant formula.	[2	Five or
		1	Four
224	Deciding to make an occupied bed and making.	2	Five
229	Changing colostomy bag, irrigating on orders.	2	Five
233	Teaching pt. how to irrigate eye with water.	2	Five
244	Teaching temperature taking and care of thermometer.	2	Five
139	Assessing results of tine test.	2	U
207	Testing plaster in home for lead and reporting positive finding.	2	U
242	Discussing job description accuracy.	2	U
253	Following up on pt. discharged from hospital.	2	Four
113	Giving general reassurance to any patient.	1	Four
116	Deciding whether to provide pt. with transportation.	1	Four
204	Providing orientation tour of facilities and procedures at Center.	1	Four
208	Collecting stool specimen and taking to lab.	1	Four
211	Teaching how to bathe and diaper infant.	1	Four
216	Teaching bottle feeding and burping to new mother.	1	Four
225	Checking pt.'s medicines and having old ones discarded.	1	Four
234	Delivering medicine to patient and explaining how to take as ordered.	1	Four
247	Deciding whether family that moved stays with Family Health Team.	1	Four
254	Planning a weekly work schedule for approval.	1	Four
213	Treating baby for cradle cap.	1	Five
214	Shampooing patient with itchy scalp.	1	Five
217	Preparing food, feeding non-infant patient.	1	Five
75	Translating Spanish-English conversation.	1	U
97	Teaching or collecting specimen for pinworm test.	1	U
220	Calling person to phone or writing message.	1	U
222	Duplicating forms on duplicating machine.	1	U
223	Deciding to make an empty bed and making.	1	U
230	Preparing materials for use in a catheter irrigation.	1	U
231	Delivering and/or picking up forms and supplies.	1	U
235	Judging what supplies are needed and requesting.	1	U
MEDICAL ASSISTANT (Unit)			
218	Bandaging or changing bandage for minor wound as ordered.	3	Five
258	Reinforcing patient in use of contraceptive.	[3	Six or
		2	Four
257	Giving vision screening tests (Keystone and Snellin).	2	Three

Table A.10.

TASKS BY TITLE, LEVEL AND FACTOR (continued)

p. 10 of 11

Task Code	Task	Task	
		Level ^a	Factor ^b
No.	Job Title and Abbreviated Name of Task		
MEDICAL ASSISTANT (Unit, continued)			
255	Contributing opinion at Unit conference as Medical Asst.	2	Four
261	Answering telephone in Unit and taking message.	2	Four
93	Applying prepackaged tine test for TB.	2	Five
95	Tablet or dipstick urine test.	2	Five
96	Taking throat culture specimen; labeling.	2	Five
161	Weighing and measuring patient and recording.	2	Five
162	Irrigating ear with solution as ordered.	2	Five
199	Preparing pt. and taking vital signs before Dr.'s exam.	2	Five
201	Giving cold water or alcohol rub on Dr.'s orders.	2	Five
256	Administering prepacked polio vaccine on orders.	2	Five
98	Obtaining clean catch urine specimen.	2	U
139	Assessing results of tine test.	2	U
140	Teaching how to do urine test using tablet.	2	U
141	Testing stool specimen for blood using tablet.	2	U
157	Checking chart for entry of lab results.	2	U
113	Giving general reassurance to any patient.	1	Four
138	Noticing and reporting relevant pt. symptoms to Dr.	1	Four
259	Taking partial history from patient.	1	Four
153	Assisting Dr. in medical exam with materials.	1	Five
260	Preparing hypodermic on orders.	1	Five
75	Translating Spanish-English conversation.	1	U
135	Readying treatment room by wiping up and cleaning.	1	U
137	Delivering cultures and specimens to incubator or lab.	1	U
145	Preparing equipment for autoclave by washing, wrapping.	1	U
146	Setting autoclave.	1	U
147	Preparing patient for pelvic exam; preparing slides.	1	U
149	Sterilizing equipment in hot water sterilizer.	1	U
151	Preparing treatment room by cleaning up and stocking supplies.	1	U
155	Obtaining urine specimen; preparing for lab.	1	U
160	Escorting patient within institution.	1	U
164	Filling out forms with ID information.	1	U
MEDICAL ASSISTANT: EKG TECHNICIAN			
262	Preparing patient and taking electrocardiogram.	2	Three
270	Demonstrating and instructing on taking EKG.	2	Three
271	Deciding if EKG reading looks suspicious.	2	Three
128	Deciding order for non-medicinal supplies.	2	U
231	Delivering and/or picking up forms and supplies.	2	U
263	Cutting and mounting an EKG strip.	1	Three
264	Ordering duplicate copies of forms.	1	U
265	Filing or pulling records of patient.	1	U

Table A.10.

TASKS BY TITLE, LEVEL AND FACTOR (continued)
p. 11 of 11

Task Code	Task	Task	
		Level ^a	Factor ^b
No.	Job Title and Abbreviated Name of Task		
MEDICAL ASSISTANT: EKG TECHNICIAN (continued)			
266	Placing and arranging non-drug supplies.	1	U
267	Routine cleaning and dusting of machines.	1	U
268	Checking EKG paper and putting in new roll.	1	U
269	Deciding whether repair is needed for EKG machine.	1	U
DARK ROOM AIDE			
71	Developing radiographs using hand developer.	1	Three
272	Checking level of developer and fixer solution.	1	Three
69	Using automatic developer for X-ray and spot films.	1	U
70	Preparing hand developing tank for X-ray film.	1	U
72	Loading X-ray film cassettes.	1	U
235	Judging what supplies are needed and requesting.	1	U
267	Routine cleaning and dusting of machines.	1	U
269	Deciding whether repair is needed for EKG machine.	1	U
273	Turning on X-ray film developing machine.	1	U

^a Levels are as follows: 7 = Surgery; 6 = Professional II; 5 = Professional I; 4 = Semi-professional; 3 = Technician; 2 = Assistant; 1 = Aide.

^b Factors are as follows: One = Surgery, Diagnosis, Prescription; Two = Pediatric Diagnosis and Prescription; Three = Machine Related Care and Radiology; Four = Social Service and Counseling; Five = Physical Care and Treatment; Six = Female Care; U = Unassigned to a factor.

APPENDIX B

TASK CONTENT INSTRUMENT, CURRICULUM SIGNIFICANCE
RATING INSTRUMENT (Cover Sheet), AND TASK FREQUENCY SCALE

B.1	Task Content Instrument	B-1
B.2	Curriculum Significance Rating Instrument Cover Sheet	B-27
B.3	Task Frequency Scale	B-28

B.1 TASK CONTENT INSTRUMENT

GENERAL INSTRUCTIONS

You are being asked to participate in a study of curriculum content for specific occupations. You have been asked to represent the curriculum content in the following program (or part of a program):

Respondent's name _____ Title _____

On the following pages are brief descriptions of tasks found in a variety of occupations. Please read each task description and consider it in relation to the program (or part of a program) you represent, as listed above.

Your curriculum may include any or all of the procedural instruction in the specific steps of the task, or in the subject matter which must be applied in the performance of the task, or it may be unrelated. In considering your curriculum, please assume that the content offered is successfully mastered. Do not be concerned with elementary instruction in reading or writing, if recording or reading written orders are involved in a task.

For each task, please choose from the items listed below the one which best describes the relationship between the curriculum you represent and the content of the task. Then check off its letter in the space provided below each task description. (This page should be used as your reference for what each lettered item refers to.)

There is an item with which to indicate that you need to know more about the task in order to answer, and an item with which to indicate that you do not know whether the task's content is accounted for in the curriculum you represent. Please use these options only when necessary.

CHOOSE ONE ITEM FOR EACH TASK

- a. Curriculum covers all or most of the specific procedures of the task or all or most of the subject matter applied in the performance of the task.
- b. Curriculum covers a significant amount of the procedures of the task or a significant amount of the subject matter applied in the performance of the task.
- c. Curriculum covers a small amount of the procedures of the task or a small amount of the subject matter applied in the performance of the task.
- d. Curriculum has no relationship to or bearing on the task.
- e. The content of the task must have been mastered before the student is permitted to enroll in the curriculum program.
- f. I do not know the relationship between the program and the task.
- g. I need more information about the task.

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>55</u></p> <p>Diagnosing a <u>pediatric pt.'s</u> development, psychological and medical condition and deciding on a course of treatment or care, by taking medical and complaint history, reviewing all relevant medical information, tests and X-rays, examining physically, discussing symptoms; deciding on referrals, tests, X-rays, or care; prescribing care, treatment, medications, follow-up; delegating as decided; discussing with pt. and/or adult; counseling; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>39</u></p> <p>Diagnosing any <u>female patient's</u> gynecological or obstetrical condition and deciding on a course of treatment or care, by taking medical and complaint history, reviewing all relevant medical information, results of tests, EKG, X-rays; examining physically; taking smears or cultures; discussing symptoms; deciding on referrals, tests, X-rays, treatment, care, or procedures; and/or delegating and ordering care; treatment, medications, prescriptions, follow-up; discussing with patient; counseling on self-care; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>223</u></p> <p>Deciding to make an unoccupied bed and obtaining clean linen, stripping empty bed of soiled linen, making up bed with clean linen; disposing of the soiled linen.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>192</u></p> <p>Assisting in a cardiac or other emergency by bringing in emergency cart; on Dr.'s orders, preparing pt. for EKG; applying leads; and/or on Dr.'s orders preparing injections, IV bottle, or helping as ordered; afterwards having emergency cart re-equipped and returning cart.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>183</u></p> <p>Inducing vomiting in any patient on Dr.'s orders by administering a vomit-inducing liquid.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>190</u></p> <p>Assisting any disabled patient in moving to and from objects such as wheelchair, bed, toilet by using arms and hands to provide support; transporting to designated locations if appropriate.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>166</u></p> <p>Assembling suture materials ordered by Dr. including suture set, suture material, needle and medication asked for by Dr.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>210, 212</u></p> <p>Bathing or assisting in bathing of pt. with soap and water (or PhisoHex); drying, applying powder and/or lotion.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>217</u></p> <p>Preparing food for and/or feeding any patient except an infant.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>197</u></p> <p>Reinforcing orders prescribed by MD on diet, prohibited food, procedures for taking medication, home care, or return visits by going over with pt. and/or explaining.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>144, 149, 174, 178</u></p> <p>Preparing treatment or equipment materials for use by sterilizing in hot water sterilizer, by filling sterilizer with water; collecting, washing, dipping in alkaline solution; placing in sterilizer; leaving for appropriate amount of time; removing; wrapping in sterile barrier paper; storing.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>145, 146, 175</u></p> <p>Preparing soiled equipment for sterilization in autoclave by washing, drying, inspecting for damage or missing parts, wrapping in autoclave paper; taping; setting autoclave timer; inserting wrapped packets.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>(1/2)245, 259</u></p> <p>Taking a partial social, family and/or medical history from any patient; or filling out census form, home evaluation form on home safety, by observing, questioning orally, asking routine, predetermined questions; recording by checking off or writing responses.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>238</u></p> <p>Deciding whether a patient needs home-making services and what homemaking services to provide, such as shopping, cooking, serving, feeding, cleaning, bathing.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>9</u></p> <p>Diagnosing any <u>non-child patient's</u> medical condition and deciding on a course of treatment or care, by taking medical and complaint history, reviewing all relevant medical information, results of tests and X-rays; examining physically; discussing symptoms; deciding on referrals or tests and X-rays or course of care; and/or delegating and ordering care, treatment, medications, prescriptions, follow-up; discussing with patient; recording.</p> <p align="center">() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>35</u></p> <p>Determining the presence of organisms or abnormal conditions in spun-down urine sediment and supernate by spinning urine sample in centrifuge, preparing slide and examining under a microscope; testing supernate for chemical content using tablets or dipstick; measuring specific gravity of supernate; deciding on nature of findings; recording findings and conclusions.</p> <p align="center">() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>132, 135</u></p> <p>Readying a treatment room for use by throwing away used materials, wiping away blood or secretion stains with anti-bacterial solution, putting clean paper on examination table; checking for treatment room equipment in need of repair, replacement or minor servicing; doing minor servicing, and/or requisitioning repair; checking treatment room set-ups.</p> <p align="center">() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>233</u></p> <p>Showing any patient except infant with irritation or foreign body in eye how to irrigate by using eye cup or cotton balls and water.</p> <p align="center">() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>138</u></p> <p>During course of interaction with any patient, observing symptoms or behavior, or noting concerns mentioned by patient which should be reported to aid in patient's care or diagnosis; reporting verbally.</p> <p align="center">() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>205</u></p> <p>Giving any patient an enema according to orders, observing amount and color of expelled material; recording.</p> <p align="center">() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>(1/3)119, 216</u></p> <p>Instructing a new mother who will bottle feed an infant on how to bottle feed and burp the infant, by explaining and demonstrating.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>232</u></p> <p>Helping any patient requiring assistance in walking by providing support with arms or hands if without support devices, or reinforcing instructions already given on use of walker, cane, or crutches.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>(1/3)119, 211</u></p> <p>Instructing a new mother in how to bathe and diaper a new infant by demonstrating and explaining use of basin for bathing baby, water at tested temperature, vaseline, powder, diapers, pins; explaining how to hold baby.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>263</u></p> <p>Cutting and mounting an EKG strip on a self-adhesive EKG chart; filling in pt. information on front of chart.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>272</u></p> <p>Checking level of developer and fixer solutions in designated barrels in automatic X-ray film developing machine, and refilling with developer and fixer solutions from bottles containing prepared solutions.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>260</u></p> <p>Preparing a hypodermic needle for injection according to Dr.'s or RN's orders including preparing medication, filling syringe if not prepacked, aspirating, capping needle tip with sterile cap, placing for use.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>(1/3)119, 215</u></p> <p>Instructing a new mother in how to prepare an infant's formula, either in a standard manner or according to Dr.'s orders, by demonstrating and explaining use of formula ingredients, measuring utensils, sterilizing equipment; showing how to boil formula, sterilize bottles, cap bottles, set out filled bottles to cool.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>271</u></p> <p>Deciding if an EKG reading looks abnormal and notifying appropriate Dr. if judged "suspicious" or abnormal.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>47</u></p> <p>Surgically excising all or part of uterus, ovaries, ovarian ducts, cysts or growths from adult female, by examining and deciding whether to go ahead; whether to enter through addominal wall or vagina; choosing anesthetic; incising skin, fatty tissue, muscle wall; deciding how much to remove based on examination and/or biopsy; excising as decided; closing, choosing suture materials, suturing; providing emergency care in case of cardiac arrest; providing and/or arranging for after care; deciding when to release pt.; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>88</u></p> <p>Identifying any child patient's physical, psychological or social condition, with consultation of Pediatrician, by taking case history, reviewing medical information, discussing with Dr., patient, and/or accompanying adult; giving general physical examination; arranging for specimens, tests, X-rays and/or referrals to special services or Pediatrician. Deciding on treatment or care, counseling, immunization, with help of Pediatrician; and arranging for administering, or follow-up as appropriate; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>63, 120</u></p> <p>Planning and writing lectures on subjects in patient care and medicine for health workers by deciding what to present, materials to use; writing lectures, editing; presenting lectures; participating in preparation of examinations; setting grading standards; administering and grading; evaluating students' ability to perform specific activities without direct supervision.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>67</u></p> <p>Taking lower G.I. series radiographs by taking preliminary X-ray for judging readiness for barium enema; administering enema on radiologist's orders; taking X-rays of pt. with barium enema and/or air contrast X-rays, using table X-ray machine, barium enema, air syringe; positioning, deciding on kilovoltage, preparing pt. and materials for radiologist.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>162</u></p> <p>On orders, irrigating any patient's ear with warm water and an ear syringe; using peroxide, and reporting returns if asked.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>161</u></p> <p>Weighing and measuring any patient, using balance scale and ruler for adults and infant scale for infants; recording on patient's chart and on anthropometric chart for children.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>(1/2)199,243,251</u></p> <p>Conducting a routine examination of any patient 6 months old or over by taking vital signs, (temperature, blood pressure, pulse rate respiration rate); listening to chest, examining eyes, nose and throat, recording; informing Dr. or RN of abnormalities.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>141,172</u></p> <p>On orders, taking a fresh stool specimen from any adult patient by insertion of finger cot into rectum; testing stool specimen for blood by use of filter paper, tablet and water, comparing color results with color on chart, and recording results of comparison.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>170, (1/2)199</u></p> <p>Preparing any patient for examination by having patient undress or assisting patient in undressing and dressing.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>236</u></p> <p>Deciding to and discussing personal, social, or health problems with patient and/or members of family or household; and providing information on agencies or other forms of help available.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>226</u></p> <p>Deciding, on the basis of conversation with pt., whether to give or reinforce basic sex education; whether to give general information, reinforce or refer to RN on contraception information; whether to give general information and/or refer to RN on abortion information; providing information decided on.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>202,258</u></p> <p>On orders, providing introductory information on contraception techniques by showing devices and explaining how each is used, effectiveness, advantages and disadvantages; answering questions. Checking whether female patient with a contraceptive device prescribed understands how to use it and possible side effects, by questioning and/or reinforcing.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>188,201,209</u></p> <p>Administering cold bath or cold towels to any patient in order to reduce fever, using ice cubes and cold water in tub for child; cold towels for adults or towels or sheet soaked in cold water and alcohol; periodically checking temperature; reporting persistant fever.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>200</u></p> <p>Applying hot and/or cold compresses or other materials as prescribed by Dr. to indicated parts of any patient's body for prescribed periods of time or until desired effect is obtained, taking precautions not to burn skin; recording treatment and results.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>105, 156, 218</u></p> <p>Irrigating and/or dressing and bandaging a wound or burn as appropriate or on orders, using sterile procedures, sterile water or saline solution for irrigation, antiseptic (saline solution for burn) for cleansing; leaving open or dressing as appropriate or as ordered, using prescribed medication; wrapping if appropriate using sterile gauze (or vaseline gauze for burn), tape, ace bandage and/or sling; teaching patient or other person how to care for wound.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>252</u></p> <p>Conducting a routine examination and providing follow-up care for a patient with a chronic disease, according to Dr.'s orders on care, diet, medication and tests to be explained or taken; taking vital signs, providing special care; recording; informing Dr. or RN of change in condition.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>253</u></p> <p>Following up on a patient discharged from a hospital by checking on his intake of medication, appointments for care, deciding whether transportation is needed; notifying Dr. of any special problem.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>262, 270</u></p> <p>Taking an EKG (electrocardiogram) of any patient according to orders by preparing patient, using electrode pads, electrodes, baby or amputee attachments as appropriate, administering exercise if ordered, placing electrodes, operating machine, tearing off readings; writing identifying information; demonstrating use of machine when asked.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>187, 198, 256</u></p> <p>Administering medication, including vaccines, taken orally to any patient, by filling Dr.'s orders from available supplies or pharmacy (using Dr.'s prescription); serving liquid in calibrated cup to adult or older child, dropping with dropper into infant's mouth; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>189, 214</u></p> <p>On orders, treating any patient for lice or itchy scalp by shampooing with antibacterial shampoo and warm water, or as ordered; shaving head with razor and blade if appropriate for lice condition.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>18</u></p> <p>Drawing blood from any <u>non-child pt.'s</u> vein and filling vacutainer and/or test tubes with appropriate blood samples; labeling or having labeled.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>61</u></p> <p>Drawing blood from a <u>pediatric pt.'s</u> vein by deciding where to draw from and syringe and needle size; preparing child by mummifying; locating vein; drawing blood, and filling test tubes with appropriate blood samples; providing after-care for puncture to prevent hemorrhaging.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>81</u></p> <p>Assessing the quality of radiographs.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>79</u></p> <p>Preparing a barium enema by filling bag containing powder with specified amount of water, assembling tube and clamp, and placing on work table or hanging at proper height.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>51</u></p> <p>Determining the presence of monilia (candida) fungi in a slide of vaginal secretion, by adding potassium hydroxide and examining under microscope; recording findings</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>3</u></p> <p>Performing fluoroscopy of any pt.'s upper G.I. tract, by reassuring pt., supervising administration of barium drink; setting and using fluoroscope monitor; deciding on and taking spot films; specifying in detail any special X-rays to be taken; recording observations.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>69</u></p> <p>Developing radiographs and spot films by use of automatic film developing machine, including unloading cassettes, transferring identification from card to film with flasher machine, mounting 70 m.m. rolls on film sheets; inserting film in developer; being sure light in room is out during entire process and until buzzer signals.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>58</u></p> <p>Preparing any patient with foreign object in eye for care at hospital, by applying strip of sodium soluble fluorescein dye; applying eye patch; recording.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>60</u></p> <p>Taking a sample of spinal fluid from any <u>pediatric pt.</u> by ordering materials, having pt. prepared, injecting local anesthetic, inserting needle into subarachnoid space, taking pressure with monometer and recording, drawing up fluid into syringe, examining fluid and deciding if emergency care and/or hospitalization is necessary; prescribing and administering IV infusion of food and/or medication; taking and recording fluid pressure again, arranging to have lab tests done; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>30</u></p> <p>Taking a sample of spinal fluid from any <u>non-child pt.</u> by ordering materials, having patient prepared, injecting local anesthetic, inserting needle into subarachnoid space, taking pressure with manometer and recording, drawing up fluid into syringe, examining fluid and deciding if emergency hospitalization is necessary, taking and recording fluid pressure again, arranging to have lab tests done and recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>100</u></p> <p>Administering, recording and self-scoring the Denver Developmental Screening Test for any child, by presenting objects and words for child's response, substituting appropriate ethnic items or words if appropriate; reporting gross abnormalities in development to Pediatrician; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>182</u></p> <p>Preparing patient for gastric lavage and/or bringing and setting up suction machine for use by Dr. by rolling in, cleaning and attaching disposable catheter; turning machine on and off at Dr.'s orders; cleaning up afterwards and taking sample or material from container for Dr.'s inspection, if called for.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>173</u></p> <p>Preparing a patient for suturing under Dr.'s orders and supervision by cleaning area with antibacterial agent, shaving hairy area using razor and antibacterial lathering agent.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>179</u></p> <p>Preparing an intravenous bottle for use according to orders; filling bottle with prescribed medication, labeling bottle with medication, if prescribed, and time; attaching to IV pole, placing needles on tray, placing near patient for use.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>65</u></p> <p>Taking radiographs (X-rays) of any pt. according to Dr.'s orders, using vertical and/or table X-ray machines, including positioning patient, adjusting controls and kilovoltage; judging quality; preparing for pick-up.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>(1/2)38,57</u></p> <p>Removing a foreign object from any pt.'s ear, by using light, head mirror and ear speculum to locate, Zephiran solution to lure live object from ear; flushing with ear syringe or using forceps with ear speculum and mirror to remove object from ear; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>15</u></p> <p>Determining the presence of trichomonas protozoa in a prepared fresh slide of vaginal secretion, by examining under microscope while still fresh; recording findings.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>72</u></p> <p>Loading a cassette(s) with unexposed, standard size, X-ray film(s), being sure light is out in room during process, and/or filling box for vertical X-ray machine with unexposed X-ray films.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>50</u></p> <p>Taking a sample of amniotic fluid from a pregnant pt. by ordering materials, having pt. prepared, injecting local anesthetic, inserting amniocentesis needle through abdomen into uterus; drawing up fluid into syringe; examining fluid; filling test tubes; arranging to have lab tests done; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>(1/2)38</u></p> <p>Removing a foreign object from any pt.'s eye, by using magnification lens and reflected light to locate, and eye anesthetic and applicator stick to remove object; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>31</u></p> <p>Taking a bone marrow sample from a <u>non-child patient</u> by ordering materials, having patient prepared, injecting local anesthetic, inserting bone marrow needle and drawing up marrow into syringe; arranging to have lab tests done; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>62</u></p> <p>Taking a bone marrow sample from a <u>pediatric patient</u> by ordering materials, having patient prepared, injecting local anesthetic, inserting bone marrow needle and drawing up marrow into syringe; arranging to have lab tests done; recording.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>48</u></p> <p>Performing vaginal plastic surgery or surgically correcting vaginal hernia in adult female, by examining and deciding whether to go ahead; choosing anesthetic; deciding what manipulation to perform and what to remove; incising vagina, examining tissues and/or having biopsy done; manipulating or excising tissues as decided; closing, choosing suture materials, suturing; providing emergency care in case of cardiac arrest: providing and/or arranging for after care; deciding when to release patient; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>89</u></p> <p>Assessing a newborn infant's medical condition for presence of abnormalities or problem, by physically examining, talking with mother, taking history; consulting with Pediatrician in cases of deformity or abnormality; treating minor problems such as umbilical stump or circumcision wound; deciding on counseling mother on infant care; arranging for referral to Pediatrician or follow-up if appropriate; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>103</u></p> <p>Measuring and/or re-fitting any fertile, non-pregnant female patient for a diaphragm and/or teaching patient use, care and precautions involved with diaphragm and spermicidal jelly or cream; measuring with fingers or cervimeter and trying out sizes to fit; teaching through explanation, demonstration and observation; arranging for revisits; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>101</u></p> <p>Providing counseling and instruction in sex matters, contraception, VD, and/or abortion for any adolescent or adult-age pt., by talking about problems, using literature, visual aids, models; explaining options, side effects, consequences of possible decisions; deciding whether to refer; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>97</u></p> <p>Preparing test for pinworms either by teaching parent or adult how to prepare slide by use of scotch tape wiped around child's anus or taking specimen personally (early morning); arranging for labeled slide to be taken to lab on same day; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>171</u></p> <p>Giving opinion on whether any patient waiting in emergency room is in need of immediate attention of Dr., based on talking with pt., looking at condition and checking chart, if available.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>71</u></p> <p>Developing radiographs by use of hand developer, by unloading cassettes, transferring identification from card to film with flasher machine; and deciding on or checking time needed in use of tank compartments for developer, fixer solutions and water; drying.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>59</u></p> <p>Removing a large, blunt metal object from any patient's pharynx, by inspecting with laryngoscope or interpreting X-rays and deciding whether to remove or send to hospital; removing with use of fingers or forceps, holding tongue with tongue blade.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>6, 20</u></p> <p>Reading and interpreting radiographs and/or spot films (new and/or old) and making recommendations; reporting findings, conclusions and recommendations based on readings and notes.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>96</u></p> <p>Taking a throat specimen from any pt.; preparing culture; labeling, having it incubated; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>11, 84</u></p> <p>Performing a routine pelvic examination on any adult female patient; taking samples for Pap and/or other tests; recording on patient's chart and Pap smear (cytology) form; having Pap smear slides and/or other slides and/or cultures prepared for lab.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>28</u></p> <p>Determining whether a patient requires immediate emergency medical care, deciding whether to call ambulance and what immediate life support procedures to administer; applying procedures covering loss of breathing, cardiac arrest, hemorrhaging, poisoning, drug overdose, shock, splinting serious fractures.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>95,108,140</u></p> <p>Testing urine specimen obtained from pt. for content such as glucose, protein, blood, ketones, by use of tablet, urine and water in test tube (for sugar) or tablet and urine for acetone, or by use of dipstick; comparing color results with color on chart; recording results based on chart comparison. Teaching pt. to perform and keep record of results.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>17</u></p> <p>Evaluating suspicious EKG readings of any patient to determine whether they are caused by a true health dysfunction or are mechanical or electrical artifacts; taking appropriate action, such as adjusting equipment, caring for pt., summoning emergency care.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>117, 118</u></p> <p>Irrigating indwelling (Foley) catheter on any patient, using sterile materials and saline solution and flushing catheter, allowing returns to flow out into basin; inspecting returns; deciding to change or changing female's catheter on orders (if performer is female) by cleaning area with antiseptic soap solution, removing old catheter and inserting new one in urethra, attaching leg bag; arranging to have male catheter changed; instructing member(s) of household or patient in irrigation of catheter, by demonstration and explanation.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>112</u></p> <p>Teaching a diabetic pt. and/or members of household how to take oral medication or inject insulin according to Dr.'s orders, by showing how to prepare syringe, swab area with alcohol, choose site of injection, check to be sure needle is not in blood vessel (having pt. practice on an orange), how to care for site of injection; explaining onset of coma or insulin shock and what to do for each; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>250</u></p> <p>Conducting a routine neonate (newborn) examination by inspecting spontaneous movement of extremities, parts of the body, reflexes; caring for umbilical stump; collecting information on feeding, stool, sleep; reinforcing mother in proper infant care; recording observations; informing Dr. or RN of abnormal conditions.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>(1/2) 257</u></p> <p>Administering and recording a vision screening test of a patient using Keystone vision testing machine, referring if less than perfect vision.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>206</u></p> <p>Examining any bedridden or immobilized patient for presence of bed sores; if found, giving decubital care using lotion on skin and Phisohex on open sores; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>228</u></p> <p>Teaching a TB patient and/or members of his household proper daily health practices.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>16</u></p> <p>Examining a slide prepared with penis or vaginal discharge by heating over flame, applying stain, using Gram's method, and examining under microscope for presence of gonococci (gonorrhea); recording findings.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>33, 92</u></p> <p>Removing a patient's sutures using anti-septic, clamp, scissors, forceps; evaluating healing; deciding on ordering antibiotics, medication, irrigation and/or bandaging; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>80</u></p> <p>Assembling medications and materials to be used for test of allergy to radio-paque dye used in intravenous pyelogram (IVP) and for patient care in case of adverse reaction.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>23</u></p> <p>Describing or evaluating patient's medical condition and/or medical or social history, based on patient's chart and knowledge of patient's condition. (For use by other institutions.)</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>32</u></p> <p>Suturing any patient's small open wound by injecting local anesthetic, deciding on number of stitches, knot, suture material, needle; sterilizing; sewing; providing shots, instructing on daily visits, and notifying Health Department if human or animal bite; explaining home care to patient or accompanying adult; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>36</u></p> <p>Observing patient's blood sample under microscope and determining condition, by dropping and smearing blood on slide, applying appropriate stain, examining under microscope; recording findings.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>2</u></p> <p>Deciding when to load 70 m.m. film into photographic attachment on fluoroscope machine and inserting new spool of 70 m.m. film, threading into machine part, closing, and advancing film to compensate for any exposure to light; removing exposed roll and placing for developing.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>34</u></p> <p>Incising and draining any patient's external abscess or boil, using topical anesthetic, antiseptic, lancet or scalpel; deciding on medication, packing, dressing and bandage; recording.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>109, 229</u></p> <p>Teaching a patient, family member or subordinate how to irrigate, change and care for colostomy, by demonstrating and explaining changing of bag, use of enema for irrigating, use of solvent and cement for attaching, or self adhesive bags; explaining care of skin; reinforcing proper health habits; providing psychological support; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>102, 111</u></p> <p>Providing any patient with special or chronic condition with counseling, reinforcement and instruction in daily living adaptations related to his condition, by reviewing diet and medication procedures, ways to adapt home, what to do in emergency; giving emotional support; inspecting or arranging for safety inspection of home; recording safety hazards; deciding on problems and solutions; arranging for special care or services, or follow-up; reporting major problems.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>224</u></p> <p>Deciding to make bed containing bedridden patient and obtaining clean linen, stripping bed and making bed with clean linen by rolling patient from one side to the other; disposing of soiled linen.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>225</u></p> <p>Checking family's or patient's drugs and medications for old or left-over medication, and explaining to family the need to throw out old medications or those left over after a course of treatment is over.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>213</u></p> <p>Treating a baby for cradle cap according to orders by washing with oil, brushing, and washing with water.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>221</u></p> <p>Giving an oral presentation about good general health care practices to a group of community people, such as school children.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>56</u></p> <p>Deciding on whether to carry out a prescribed course of treatment, care or medication for a <u>pediatric patient</u>, and/or changing or approving renewal of prescriptions, by reviewing prescribed care, examining present condition, discussing progress and symptoms with patient and/or accompanying adult; deciding to administer medication or care or to have it done by subordinate; ordering medications; and/or administering medications; by insertion, as drops, as injections; observing relevant reactions; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>41</u></p> <p>Providing prescribed intra-vaginal treatment or care for any <u>female pt.</u>, by reviewing prescription, present condition; deciding to go ahead or change procedure; cauterizing, using electric cauterizer; doing punch cervical biopsy; inserting IUD using beta-dine and tenaculum; removing vaginal polyps using forceps; correcting retroflexed uterus by inserting pessary; fitting diaphragm; using sterile procedure, gloves, speculum; explaining aftercare to pt. or appropriate instructions; arranging for follow-up; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>193</u></p> <p>Preparing any patient and materials for a bone marrow puncture or spinal tap, on Dr.'s orders, by laying out appropriate prepacked kit, cleansing appropriate body part with antiseptic, draping patient with sheet if appropriate, and informing Dr. when patient is ready.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>248</u></p> <p>Conducting a routine pre-natal examination of a pregnant pt. under supervision by making health checks, discussing physical and emotional health; providing information and instruction on health practices, childbirth, available services, abortion; recording observations; informing Dr. or RN of abnormal conditions.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>185</u></p> <p>Assisting in administration of oxygen to any patient by wheeling in oxygen tank, placing mask on patient, turning on machine and adjusting oxygen flow under supervision, according to Dr.'s orders.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>195</u></p> <p>Applying an eye patch for any patient on orders.</p> <p>() () () () () () () a b c d e f g</p>

TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>43</u></p> <p>Delivering a baby through the vagina, by examining pt.; judging when there is true labor; ordering IV; deciding when to send pt. to delivery room; deciding on pain relief and/or anesthetic, whether to rupture amnionic sac, whether to perform cesarean section. Assisting in birth with forceps, vacuum extractor and/or performing episiotomy with scissors; providing emergency care in case of cardiac arrest; clamping and cutting umbilical cord; inspecting placenta; providing aftercare; deciding when to release pt.; recording and filling out any necessary papers.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>83</u></p> <p>Identifying obvious medical condition of any <u>non-child patient</u> and arranging for routine care or referring patient to Dr., by taking case history, interviewing patient about symptoms, taking vital signs, looking at throat; ordering standard tests, specimens, X-rays and/or medications on advice of doctor; deciding to perform or delegate some tests, specimen taking or giving medication; explaining to patient, recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>246</u></p> <p>Selecting routine diagnostic tests and/or initial instruction or advice for pt. based on intake information; reviewing and listing problems of family; deciding on order of priority; deciding on home visits or appointments based on Dr.'s orders.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>249</u></p> <p>Conducting routine post-partum examination of a new mother by checking vaginal stitches, breasts, vital signs, uterine fundus; asking about discharge, bleeding, health functions; providing instruction in care of stitches, breasts, how to deal with milk, breast feeding; recording observations; informing Dr. or RN of abnormal conditions.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>244</u></p> <p>Teaching pt. and/or members of household how to take temperature using oral and/or rectal thermometer by explanation and demonstration, including demonstrating with child patient; showing how to care for and clean thermometer.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>194</u></p> <p>Administering medication in the form of eye or ear drops to any patient, according to orders.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>87</u></p> <p>Carrying out a prescribed course of treatment or care or arranging for re-fill of medication for any patient, by reviewing prescribed care, examining present condition, discussing with patient; deciding to refer problems or regulated drug renewal requests to Dr. for consultation or approval. Ordering or administering medications, providing care such as for infections or wounds; assessing progress; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>46</u></p> <p>Performing a saline abortion on a female with 12 to 24 weeks of pregnancy, by examining and deciding whether to go ahead; deciding on anesthetic; retracting vagina; using syringe and catheter to withdraw amniotic fluid, and syringe to inject hypertonic fluid into amniotic cavity of uterus; checking patient's condition; returning after 48 hours to check patient after she has aborted; arranging after care and follow-up; recording on necessary documents.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>19</u></p> <p>Deciding whether to administer radiopaque solution for IVP (X-ray of kidney and ureter), by questioning patient about allergy to iodine, history of asthma; and/or injecting and watching reactions to 2 cc test injection; if ok, injecting full amt. of radiopaque solution, standing by for delayed adverse effects; telling lab technician when to go ahead with IVP. If adverse effects; administering emergency care; informing pt. of allergy.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>13</u></p> <p>Setting up an intravenous apparatus for a non-child patient by preparing bottle(s) of prescribed solution, inserting the IV needle into patient's vein, and regulating the flow.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>68</u></p> <p>Preparing patient and barium drink for fluoroscopy; taking X-rays following fluoroscopy according to standard procedures and proper lapses of time, using table X-ray machine; positioning, deciding on kilovoltage.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>66</u></p> <p>Taking IVP's (intravenous pyelogram(s)) according to Dr.'s orders; including preparing for allergy test and proceeding only on Dr.'s orders; positioning; adjusting controls on table X-ray machine; watching for delayed adverse reactions of patient.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>86</u></p> <p>Performing a pre-natal examination on any pregnant female patient, by taking vital signs, height, weight, examining breasts, listening to fetal heartbeat, performing pelvic examination; counseling and discussing pregnancy, care, diet hospitalization, emotional problems; taking specimens for tests; identifying condition or consulting Dr. if abnormalities found; prescribing care, treatment or medication with Dr.'s approval if appropriate; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>1</u></p> <p>Performing fluoroscopy of any pt.'s lower intestinal tract, by deciding if "scout film" shows clear tract, reassuring pt., supervising X-ray technician in administering barium enema, setting and using fluoroscope machine, observing lower intestines on monitor; deciding on and taking spot films, watching out for bowel puncture and arranging to hospitalize if necessary; specifying in detail any special X-rays to be taken; recording observations.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>152</u></p> <p>On Dr.'s orders inoculating any patient with smallpox vaccine using prepackaged vaccine and monovacc needle; explaining aftercare to patient; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>147</u></p> <p>Preparing a patient for a pelvic examination by preparing materials, including instruments and materials for slides; taking wet prep slides to lab; preparing other slides for lab, including use of fixative; labeling.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>45</u></p> <p>Performing an abortion by applying currtage to female with twelve weeks or less of pregnancy, by examining and deciding whether to go ahead; deciding on anesthetic; retracting vagina; applying vacuum suction; scraping remaining matter, checking patient's condition; arranging for follow-up and/or after care; recording on necessary documents.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>142</u></p> <p>Administering rectal medication to any patient, according to orders, using finger cot; recording.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>4</u></p> <p>Performing fluoroscopy portion of hysterosalpingography on any adult female patient, by reassuring pt.; supervising the instillation of roentgenopaque (hypaque) solution into uterus and uterine tubes; setting and using fluoroscope machine; observing condition of organs on monitor; deciding on and taking spot films; specifying in detail any special X-rays to be taken; and recording observations.</p> <p>() () () () () () () () a b c d e f g</p>	<p>Task Code No. <u>85</u></p> <p>Providing post-partum examination and evaluating condition of a new mother by giving general examination, checking vaginal stitches, breasts, uterine fundus, asking about discharge, bleeding, health functions; providing instruction in care of stitches, breasts, how to deal with milk, breast feeding; diagnosing and prescribing care for minor problems; referring abnormalities to Dr.; arranging for treatment, care, medication; recording.</p> <p>() () () () () () () () a b c d e f g</p>
<p>Task Code No. <u>153,163,180,181,230</u></p> <p>Preparing materials for special procedures by making sure materials are sterile for use and/or that kits are not expired; assisting in procedures by handing examination or treatment supplies, materials or equipment as ordered, and/or turning equipment on, off or adjusting as required, or on orders; and/or preparing trays with equipment; labeling samples taken.</p> <p>() () () () () () () () a b c d e f g</p>	<p>Task Code No. <u>143</u></p> <p>On orders, obtaining urine from any female patient by use of female catheter under sterile conditions, by inserting catheter, massaging patient to help void urine and, if ordered, measuring urine, delivering for inspection or preparing for laboratory analysis; recording amount obtained and/or abnormal appearance.</p> <p>() () () () () () () () a b c d e f g</p>
<p>Task Code No. <u>22</u></p> <p>Responding to cardiac arrest of any pt. by cooperating to take emergency action such as insertion of endotracheal tube, performing tracheostomy; administration of artificial respiration and oxygen; providing cardiac massage; taking EKG and applying defibrillator; injecting intracardiac stimulant; providing IV infusion.</p> <p>() () () () () () () () a b c d e f g</p>	<p>Task Code No. <u>94,139</u></p> <p>Assessing results of Tine Test (TB) after correct lapse of time by examining patient's arm and comparing raised area to given standards to determine positive or negative results; recording; informing Dr. if positive results.</p> <p>() () () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>44</u></p> <p>Delivering a baby by cesarean section, by examining patient and deciding whether to go ahead with surgery; deciding on anesthetic, location of incisions; incising skin, fatty tissue, muscle wall and uterine wall; retracting; removing infant, clamping off and cutting umbilical cord, removing placenta; closing, choosing suture materials, suturing; providing after care; deciding when to release pt; recording and filling out necessary papers.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>40</u></p> <p>Deciding to administer, change (and/or approve renewal of prescription for) medication for OBS-GYN patient, by reviewing RX, chart, present condition; discussing progress and symptoms with patient; deciding to administer medication or to have it done by subordinate; ordering medications, materials; administering medication by intravenous, intramuscular or subcutaneous injection, or by inserting in vagina or rectum; observing reactions; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>207</u></p> <p>Deciding to test and testing plaster in patient's home for lead by using prepared solution; making appointment for examination for children if results are positive; notifying Poison Control.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>237</u></p> <p>Deciding to discuss with and advise patient and/or members of household on consumer protection and/or rights, using literature and information; and/or advising on how to stretch money using information on good practice and available aids; and/or helping to design a family budget.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>191</u></p> <p>Applying a splint to any patient according to orders by bending to prescribed angle, using gauze, tape, ace bandage, board and/or sling; as required.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>268</u></p> <p>Checking EKG machine for its supply of cardiograph paper and replacing roll when needed.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>5</u></p> <p>Performing instillation portion of hysterosalpingography on any adult female pt., by reassuring patient; inserting sterile vaginal speculum; and inserting cannula, using sterile tenaculum, through cervix into uterine cavity; instilling roentgenopaque (hypaque) solution when told.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>14</u></p> <p>Evaluating a prepared skin specimen slide for presence of mycelia (fungi) by adding KOH solution, heating over flame, and examining slide under microscope; recording findings.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>93</u></p> <p>Testing any patient for TB by applying a prepackaged Tine test to arm, instructing patient when to return for results, recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>91</u></p> <p>In an emergency, deciding whether to have ambulance called; deciding what first aid to provide on the spot; providing first aid.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>12</u></p> <p>Removing a wart from a pt. by using scalpel and/or electrodesiccator - fulgurator local anesthetic; deciding whether to have specimen analyzed for pathology; if so, cutting specimen and preparing for analysis, by putting in preservative and filling out report; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>70</u></p> <p>Preparing a tank used for hand developing of X-ray films for use by filling water compartment with water, making sure temperature is at 68° F., stirring developer and fixer solutions in their compartments; covering compartments.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>42</u></p> <p>Providing fertility assistance to adult female pt. by deciding to do any or all procedures involving counseling, instruction in temperature charting, prescribing medication, using needle and syringe for andrometric biopsy and analysis, arranging for analysis of husband's sperm; discussing findings with patient; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>27</u></p> <p>Planning and presenting lectures on prescribed subjects in pt. care and medicine to health workers by deciding what should be presented, planning outline and method of presentation, assembling instructional materials, and presenting lectures.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>49</u></p> <p>Performing ligation of fallopian tubes on adult female by examining and deciding whether to go ahead, whether to enter through abdominal wall or vagina; choosing anesthetic; incising; examining for tumors and, if found, performing biopsy; excising malignant tissue; ligating each tube in two places and cutting tubes; closing; choosing suture materials, suturing; providing emergency care in case of cardiac arrest; providing and/or arranging for after care; deciding when to release patient; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>37</u></p> <p>Caring for any patient with injury such as lacerated wound, fracture, sprain, burn or bleeding nose, by deciding on procedures and materials, using sterile procedures if appropriate, and cleaning, applying butterfly adhesive, medication, sterile dressing, splint, tape, bandage, packing, sling as appropriate; prescribing antibiotic or pain killer if appropriate; explaining care to pt. or family including care of injury, use of medication, crutches, other aids, signs of infection; arranging follow-up; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>107</u></p> <p>Examining and teaching an adult female patient self examination of breasts, care of minor cracks and infections and danger signs; arranging follow-up attention if warranted; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>104</u></p> <p>Administering a common range of motion exercise to any patient on orders, by grasping limb and moving to natural limits in all directions; teaching patient or member of household by demonstration; reporting major changes in pt.'s condition; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>115</u></p> <p>Deciding on or reconfirming appropriate agencies for patient's needs; arranging for referral by writing letter, using agency forms or contacting by phone; obtaining patient permission slips or Dr.'s signatures if needed.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>99, (1/2)257</u></p> <p>Administering and recording a vision screening test to any patient except infants using Snellin eye charts; recording; referring if serious defects are evident.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>10</u></p> <p>Deciding on whether to carry out a prescribed course of treatment, care or medication for a <u>non-child patient</u>, and/or changing or approving renewal of prescriptions, by reviewing prescribed care, examining present condition, discussing progress and symptoms with patient; deciding to administer medication or care or to have it done by subordinate; ordering medications, materials and/or administering medications; observing relevant reactions; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>90</u></p> <p>Performing a post-hospital visit with a chronic schizophrenic patient by talking with patient and checking on medication intake; evaluating whether medication should be reconsidered, whether patient should be seen by psychiatrist; providing counseling in daily living and social problems to patient and/or family; arranging for follow-up referrals, and/or readmission to hospital; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>114</u></p> <p>Providing pragmatic counseling on personal problems to any troubled patient, by talking with patient and helping to find solutions to problems; judging if patient is seriously disturbed; and referring to psychiatrist or Dr.; arranging for follow-up referrals if appropriate; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>106</u></p> <p>Instructing any patient (or adult caring for child) in postural drainage technique, on Dr.'s orders, by showing pt. how to lie on bed to have mucus drain reinforcing good personal health practices; recording.</p> <p>() () () () () () () a b c d e f g</p>
<p>Task Code No. <u>98</u></p> <p>Obtaining a clean catch urine specimen from any patient by explaining clean catch procedure, giving kit, applying procedures to infant, using soap, water, swabs and self adhering urine bag; labeling, preparing for lab; recording.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>177</u></p> <p>Treating any patient for ringworm according to orders by cleaning area with antibacterial agent, shaving hairy area and applying prescribed ointment.</p> <p>() () () () () () () a b c d e f g</p>

B.1 TASK CONTENT INSTRUMENT (continued)

Check Appropriate Letter For Each Task Description	
<p>Task Code No. <u>203</u></p> <p>Explaining the nature and purpose of a special diet to any patient; helping to come up with substitutes in the ethnic foods of the patient that are compatible with diet; explaining consequences of not following, using information on the diet and the patient's condition from his chart and a general knowledge of the nutritional content of foods.</p> <p>() () () () () () () a b c d e f g</p>	<p>Task Code No. <u>133,167</u></p> <p>Preparing and administering a subcutaneous or intramuscular injection according to Dr.'s orders by preparing medication, filling syringe (from prepackaged or prepared medication), checking patient's allergies; advising of side effects of immunizations, choosing where to inject; disinfecting area before injecting, recording.</p> <p>() () () () () () () a b c d e f g</p>

B.2 CURRICULUM SIGNIFICANCE RATING INSTRUMENT (Cover Sheet)

GENERAL INSTRUCTIONS

Program (or part of program) _____

Respondent's Name _____ Title _____

At an earlier time you were asked to identify the relationship between the program (or part of a program) you represent, as listed above, and the content of a given set of task descriptions. Attached is a selected list of those task descriptions which you designated as being covered by your curriculum completely, to a significant extent, or to a small extent.

Please consider all the tasks presented in the attached page(s) and think of those parts of your program which relate to those tasks. Consider those parts as a section of your curriculum. Then, please check the description below which best represents your estimate of how that section of your curriculum relates to your entire program (or part of a program) as listed above.

CURRICULUM SIGNIFICANCE RATING SCALE

- 5..()...The section of curriculum represented amounts to several courses or more in the program.
- 4..()...The section of curriculum represented amounts to an entire course or major portions of several courses in the program.
- 3..()...The section of curriculum represented amounts to a major portion of a course or minor portions of several courses in the program.
- 2..()...The section of curriculum represented amounts to a minor portion of a course in the program.
- 1..()...The section of curriculum represented amounts to a negligible portion of a course or several courses in the program.

B.3 TASK FREQUENCY SCALE

This scale refers to the frequency with which the task being scaled is executed by the performer. Tasks which are regularly done should be scaled with the use of the wording outside of the parentheses in the statements presented below. Tasks which are done infrequently or concentrated into certain times during the year should be rated with the use of the wording within the parentheses; these represent conversions to a normal work year.

SCALE VALUE	DESCRIPTIVE STATEMENT
0	Task is never done.
1	Task is done once per year or less.
2	Task is done more often than once per year, but less than once per month (no more than 11 times per year).
3	Task is done once per month or more, but less often than once per week (no more than 33 times per year).
4	Task is done once per week or more, but less often than once per day (no more than 180 times per year).
-	
6	Task is done once per day or more, but less often than five times per day (no more than 912 times per year).
7	Task is done five times per day or more, but less often than ten times per day (no more than 2,052 times per year).
8	Task is done ten times per day or more, but less often than fifty times per day (no more than 11,172 times per year).
9	Task is done fifty times per day or more (11,173 times per year or more).

DOCUMENT RESUME

ED 070 853

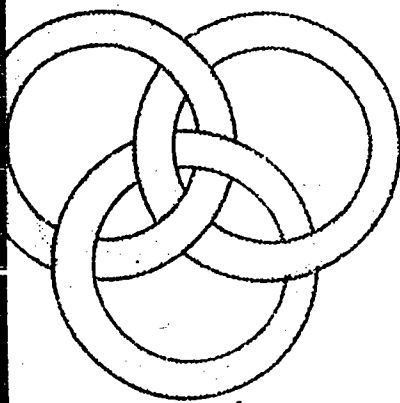
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ABSTRACT

Cooperative education, said to be a "sleeping giant" in vocational education, received special authorization in Public Law 90 576 and was made a priority in vocational education. This publication summarizes information to assist the states in planning development of cooperative vocational education: definitions, funding sources, program content, and applicable legislation including regulations for State vocational education programs. It is intended to be used in conjunction with "A Guide for Cooperative Vocational Education" prepared by the University of Minnesota under contract with the Office of Education and available as ED 037 564. (MF)

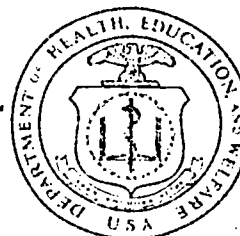
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COOPERATIVE VOCATIONAL EDUCATION PROGRAMS

VT018251



FOREWORD

This publication summarizes selected facts and suggestions which may be helpful to State staffs in planning for the further development of cooperative vocational education. The purpose of this document is to bring together those elements of information which appear to be pertinent in facilitating the decision-making process.

The Resource Manual should be used in concert with A Guide for Cooperative Vocational Education, a publication prepared by the University of Minnesota under contract with the Office of Education. This publication is no longer available from the Office of Education but has been reproduced for sale (\$1.50 per copy, plus 50¢ for postage and handling) by the Nicholson Bookstore, University of Minnesota, Minneapolis, Minnesota 55455. The Guide presents concepts and principles for program development whereas the Resource Manual is styled to serve program information needs.

While the Resource Manual includes programmatic discussions, the material contained herein cannot take precedence over the Act, the Regulations, or individual State plans. Authorization for the expenditure of Federal funds granted to a State is given by the State Director of Vocational Education.

This Resource Manual should be viewed as a form of technical assistance. The material was prepared by Edwin L. Nelson, Education Program Specialist, under the direction of Sherrill D. McMillen, Chief, State Programs and Services Branch.

July, 1972

Michael Russo
Acting Director
Division of Vocational and
Technical Education

COOPERATIVE VOCATIONAL EDUCATION PROGRAMS

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Cooperative Vocational Education Programs

INTRODUCTION

Cooperative vocational education is an interdependent combination of vocational instruction and employment related to that instruction. Employment under this arrangement is conceived to be an extension of in-school instruction; that is, a method of instruction which provides relevant laboratory experiences in a real life setting.

A cooperative vocational education program, therefore, is designed to serve an educational or training objective. Students participate in a cooperative program because they wish to acquire qualifications for a pre-determined area of competitive employment. For them it is career preparation.

Cooperative programs are not new, even though special authorization for cooperative vocational education in P.L. 90-576 is new. This plan for utilizing community learning stations has been encouraged and practiced within the framework of specific occupational program areas for many years. This highly effective technique gained prominence and Congressional support when the National Advisory Council on Vocational Education reported:

"The part-time cooperative plan is undoubtedly the best program we have in vocational education. It consistently yields high placement records, high employment stability, and high job satisfaction."

The Council further observed:

"Usually, many more students apply than can be accepted; this leads to rejection of the students who need it most."

These findings give direction to program development under the Vocational Education Amendments of 1968: (1) the continuation and expansion of the current effort and (2) the involvement of more disadvantaged youth in cooperative vocational education programs.

It has been said that cooperative education represents a "sleeping giant" in vocational education. The resources and environment for further development are now self-evident. Congress has made cooperative education a priority in vocational education; a new sense of social responsibility exists in the business and industrial community; youth want "relevant" education. In this period of great expectations vocational educators have a unique opportunity to extend the range of vocational education through cooperative vocational education.

Cooperative Vocational Education Programs

DEFINITION

Part G funds are available for cooperative vocational education programs which satisfy the definition in Sec. 175 of P.L. 90-576.

" the term 'cooperative work-study programs' means a program of vocational education for persons who, through a cooperative arrangement between the school and employers, receive instruction, including required academic courses and related vocational instruction by alternation of study in school with a job in any occupational field, but these two experiences must be planned and supervised by the school and employers so that each contributes to the student's education and to his employability. Work periods and school attendance may be on alternate half-days, full-days, weeks, or other periods of time in fulfilling the cooperative work-study program." (Emphasis added)

Interpretation of items underscored:

- (a) cooperative arrangement means an agreement between the school and an employer, evidenced by a documented training agreement, to provide instruction and work experiences in accordance with student's training needs.
- (b) employer means one who provides on-the-job instruction for a student who is legally employed part-time or full-time, depending upon the scheduled of alternation, and from whom the student receives compensation.
- (c) required academic courses means those which are designed for the general student body and are normally required for graduation; such courses are not considered eligible for reimbursement from vocational education funds except as qualified under (d).
- (d) related vocational instruction means in-school courses specifically designed to develop and improve occupational skills, knowledges and attitudes, and, to the extent needed, basic education (remedial) and personal social skills; such costs of courses may be reimbursed from vocational education funds. An academic course deemed essential for occupational preparation may be recognized as related vocational instruction if the course is specifically organized to meet the needs of cooperative vocational education students.
- (e) alternation of study in school with a job means the scheduling of employment, as part of the student's class load, in any time sequence that will assure adequate preparation in meeting qualifications for full-time employment; school credit is granted for the employment period.

Cooperative Vocational Education Programs

**SOURCES FOR FUNDING
Under P.L. 90-576**

Part B -- State Vocational Education Programs

Sec. 102 (a) ----- Authorization for State Vocational Education Programs as defined in Part B, Sec. 122 (90%) and Part C -- Research and Training in Vocational Education (10%).

Duration: Permanent

**Program Development: Any program, service, or activity funded under Part B may involve cooperative vocational education, including those supported by the set-asides: 15% disadvantaged
10% handicapped
15% postsecondary**

Limitation: Subject to the conditions applicable to all programs, services, or activities funded under Part B. Funds may not be used for added employer costs or certain student expenses.

Federal Share: 50% (Statewide Matching)

*** * ***

Sec. 102 (b) ----- Special authorization for the disadvantaged as defined in Sec. 122 (a) (4) (A).

Duration: 2-year authorization (Extended to FY 75)

Program Development: Cooperative vocational programs may be funded under 102 (b).

Limitation: Subject to the conditions applicable to any Part B program.

Federal Share: Up to 100%.

Sources for Funding (continued)

Part C -- Research and Training in Vocational Education

Sec. 132 ----- Authorization of grants and contracts for research; research dissemination through training programs; experimental, developmental, and pilot programs to test research findings; demonstration and dissemination projects; development of new curricula; projects in the development of new careers and occupations.

Duration: Permanent

Program Development: A grant or contract for research and training may have as its purpose to facilitate advancements in cooperative vocational education through research activity.

Limitation: Subject to priorities and conditions set for Commissioner's discretionary portion (50%) and by individual State plans (50%).

Federal Share: Up to 90% for grants and contracts.

Part D -- Exemplary Programs and Projects

Sec. 143 ----- Authorization for (1) planning and developing exemplary programs or projects, and (2) establishing, operating, or evaluating exemplary programs or projects.

Duration: 4-year authorization (Extended to FY 75)

Program Development: Part D provides resources to bring together in one operational setting validated program elements growing out of research and developmental activities. The inclusion of work experience, either primarily for orientation or skill development purposes, or cooperative education as components of Part D projects, is strongly encouraged.

Limitation: Subject to priorities, conditions, and guidelines set forth for 50% of the appropriation for Commissioner's use and for 50% of appropriation for State grant program use.

Federal Share: Up to 100%.

Sources for Funding (continued)

Part E -- Residential Vocational Education (State Programs)

Sec. 152 ----- Authorization for State planning, constructing, and operating residential vocational education facilities.

Duration: 2-year authorization (Extended to FY 75)

Program Development: Cooperative vocational education may be included as part of the vocational course offerings at such a school.

Limitation: (Appropriations for this Part have not been made)

Federal Share: Up to 90%

Part F -- Consumer and Homemaking Education

Note: Not applicable to cooperative vocational education. Training programs and ancillary services in the area of occupational home economics programs are supported under Part B and may be supported in all other Parts, including Part G.

Part G -- Cooperative Vocational Education Programs

Sec. 172 ----- Separate authorization for cooperative vocational education programs; definition in Sec. 175.

Duration: 4-year authorization (Extended to FY 75)

Program Development: Any vocational program funded under Part G must include cooperative arrangements, as defined on page 2.

Limitation: Priority for funding is to be given to areas that have high rates of school dropouts and youth unemployment.

Federal Share: Up to 100%

Sources for Funding (continued)

Part H -- Work-Study Programs for Vocational Education Students

Sec. 181 ----- Authorization for compensation of vocational education students employed by public employers and for administration of program. A program of financial assistance.

Duration: 2-year authorization (Extended to FY 75)

Program Development: While not required, it is possible for the placement of a "work-study" student to be directly related to his program of studies, thereby satisfying a requirement for enrollment in a cooperative vocational education program.

Limitation: Subject to conditions in legislation (e.g., maximum compensation) and priorities established by the State Board for funding applications.

Federal Share: Up to 80%

Part I -- Curriculum Development in Vocational and Technical Education

Sec. 191 ----- Authorization for curriculum development.

Duration: 2-year authorization (Extended to FY 75)

Program Development: A grant or contract for the development of curriculum materials may have as its objective the development of materials for use in cooperative vocational education.

Limitation: The full appropriation will be used at the discretion of the U.S. Commissioner of Education.

Federal Share: Up to 100%

* * * * *

Note: (1) The two year authorization for 102(b), Part E, Part H, and Part I were extended through FY 1972 under the authority of P.L. 91-230, approved April 13, 1970.

(2) All expiring Parts of P.L. 90-576 (102(b) and Parts D through I) are extended through FY 1975 under the authority of P.L. 92-318, approved June 23, 1972.

Vocational Education Act of 1963, as amended

Comparative Analysis of Cooperative Education Programs
and Work-Study Program

Part B

State Vocational
Education Programs

1. Money appropriated under Part B and allotted to the States may be expended for cooperative education programs

2. Purpose

To provide on-the-job work experience related to the student's course of study and chosen occupation

3. Students Served

Individuals in all communities of the State who desire and need such education and training

Part G

Cooperative Vocational
Education Programs

1. Money appropriated under Part G and allotted to the States shall be expended for developing new programs of cooperative education

2. Purpose

To provide on-the-job work experience related to the student's course of study and chosen occupation

3. Students Served

Individuals in all communities of the State who desire and need such education and training

Part H

Work-Study Programs for
Vocational Education Students

1. Money appropriated under Part H and allotted to the States shall be expended for work-study programs

2. Purpose

To provide financial assistance to students who are in need of earnings from employment to commence or continue their vocational program

3. Students Served

Economically disadvantaged full-time vocational education students

Priority is given to areas of high rates of school dropouts and youth unemployment

Priority is given to areas of high rates of school dropouts and youth unemployment

Students in nonprofit private schools to the extent consistent with the number in such schools (proportionate)

Part B

State Vocational
Education Programs

4. Uses of Funds
Program operation and
ancillary services

Part G

Cooperative Vocational
Education Programs

4. Uses of Funds
Program operation and
ancillary services

Reimbursement of added training
cost to employers, when
necessary

Payment for certain services or
unusual costs to students while
in cooperative training

5. Federal Portion of Support
Based upon Statewide matching
(50/50) for all basic grant
vocational education programs
as conditioned by the
application of State criteria
for allocation of funds

5. Federal Portion of Support
All or part (100%)

6. Instruction
In-school vocational
instruction related to
occupational field and
training job

6. Instruction
In-school vocational
instruction related to
occupational field and
training job

7. Work Periods
Alternate half days, full
days, weeks, or other periods
of time. (Number of hours
of work generally equal the
number of hours spent in school)

7. Work Periods
Alternate half days, full
days, weeks, or other periods
of time. (Number of hours of
work need not equal the number
of hours spent in school)

Part H

Work-Study Programs for
Vocational Education Students

4. Uses of Funds
Compensation of students
employed

Development and
administration of program

5. Federal Portion of Support
80%

6. Instruction
In-school vocational
instruction not necessarily
related to the job

7. Work Periods
Maximum of 15 hours per
week while attending
school; if the student
is not attending classes
during the summer, there
is no limitation upon
hours of employment.

Part B

State Vocational
Education Programs

8. Wage Payments
Wages paid by employer

Usually at least minimum wage
or student-learner rate
established by Department of
Labor

Part C

Cooperative Vocational
Education Programs

8. Wage Payments
Wages paid by employer

Usually at least minimum wage
or student-learner rate
established by Department of
Labor

Part H

Work-Study Programs for
Vocational Education Students

8. Wage Payments
Public funds are used
for compensation

\$45 per month, \$350 per
academic year or in
certain cases \$60 per
month, \$500 per academic
year; if the student is
not attending classes
during the summer, there
is no limitation upon the
amount of compensation

9. Age Limitations
Minimum age 14 as per Child
Labor Laws

10. Eligible Employers
Public or private

11. Administration
Administered by the State
or local educational agencies
under supervision of the State
Board for Vocational Education
in accordance with State Plan
provisions

12. Program Duration
Permanent

9. Age Limitations

Minimum age 14 as per Child
Labor Laws

10. Eligible Employers
Public or private

11. Administration
Administered by the State
or local educational agencies
under supervision of the State
Board for Vocational Education
in accordance with State Plan
provisions

12. Program Duration
4 years (Extended to FY 75)

9. Age Limitations

15 through 20 years of age

10. Eligible Employers
Limited to public, non-
profit, employers

11. Administration
Administered by the State
or local educational agencies
under supervision of the
State Board for Vocational
Education in accordance
with State Plan provisions

12. Program Duration
2 years (Extended to FY 75)

Cooperative Vocational Education Programs

REGULATIONS FOR STATE VOCATIONAL EDUCATION PROGRAMS*

PART G ONLY

§102.96 State plan provisions - general

"In order to prepare young people for employment through (a) providing meaningful work experience combined with formal education enabling students to acquire knowledge, skills, and appropriate attitudes, (b) removing the artificial barriers which separate work and education, and (c) involving educators with employers, creating interaction whereby the needs and problems of both are made known, thereby making it possible for occupational curricula to be revised to reflect current needs in various occupations, funds allotted to the States for the purpose of part G of the Act may be used for the expansion of cooperative vocational education programs, and for ancillary services and activities which are necessary to assure quality in such programs. The State plan requirements set forth in §§102.31 through 102.46 are also applicable to cooperative vocational education programs assisted under part G of the Act. In addition, the State board shall include provisions in its State plan for the establishment of cooperative vocational education programs through local educational agencies, with participation of public and private employers, as required by §§102.97 through 102.104."

Discussion: This regulation provides the rationale for cooperative vocational education, sets for the guiding principles for expenditures, and identifies program implementation through local educational agencies. It also suggests continuation of existing cooperative programs under the basic grants (Part B) since Part G funds are to be used for "expansion of cooperative . . ." This regulation designates other general regulations which are applicable to Part G programs. These regulations are summarized as follows:

- §102.32 State board--Requires a State Board to be the sole State agency responsible for the administration of vocational education, or for the supervision of the administration thereof by local educational agencies.
- §102.33 Long-range program plan--Specifies requirements.
- §102.34 Annual program plan--Specifies requirements.

*Federal Register, Vol. 35, No. 91--May 9, 1970.

Part G Regulations (continued)

- §102.35 State administration and leadership--Requires the State to provide for a staff to carry out State plan provisions, including leadership for cooperative vocational education.**
- §102.36 Program evaluation--Describes provisions for evaluation of program, services, and activities.**
- §102.37 Custody of Federal funds--Identifies official to receive Federal funds.**
- §102.38 Qualifications of personnel--Specifies the designation of minimum qualifications, provision for improvement of qualifications and modification of standards.**
- §102.39 State reports--Provides for submission of reports.**
- §102.40 Cooperative arrangements--Requires provisions for arrangements with public employment service system, State agencies responsible for education of handicapped persons, and optional agreements with other agencies, organizations, institutions and States.**
- §102.41 Effective use of program results and experiences--Requires the use of results and experience of programs assisted under Parts C through I.**
- §102.42 State fiscal and accounting procedures--Requires description of fiscal control and fund accounting procedures.**
- §102.43 Opportunity for hearing on local applications--Requires procedures for hearings before the State board.**
- §102.44 Requirements with respect to construction--Requires compliance with requirements for construction projects assisted under Part B of the Act. (Part G funds may not be used for construction)**
- §102.45 Economically depressed or high unemployment areas--Designates procedures for designating depressed areas.**
- §102.46 Areas of high concentration of unemployed youth or school dropouts--Identifies criteria for determining such areas, particularly applicable to Part G.**

Part G Regulations (continued)

§102.97 Approval of cooperative vocational education programs

"The State plan shall describe the policies and procedures to be followed by the State board in receiving, reviewing, and approving applications for the development and operation of cooperative vocational education programs submitted by local educational agencies which meet the requirements of §102.98. Such description shall --

(a) Set forth the principles for determining the priority to be accorded applications from local educational agencies for cooperative vocational education programs, with preference being given to applications submitted by local educational agencies serving areas of high concentrations of youth unemployment or school dropouts, as determined pursuant to §102.46; and

(b) Provide, insofar as financial resources are available, for the undertaking of programs in the order determined by the application of such principles."

Discussion: This regulation requires a State to set forth in its State plan application procedures including the designation of content for application forms, criteria for review, and procedures for acting on applications. The State may elect to apply criteria established for Part B vocational education programs as well as other criteria established for Part G programs but must apply the criteria set forth in this regulation: preference given to areas of high incidence of school dropouts and youth unemployment, and funding Part G programs in the order determined by such designation.

While it is the intent of Part G to serve more disadvantaged youth, the language of the law and regulations refers to areas rather than individuals. The correlation between disadvantaged youth and high rates of dropouts and youth unemployment is usually high. Therefore, the likelihood of Part G programs serving disadvantaged youth in target areas is also high. However, any student living in such an area, whether personally disadvantaged or not, could be enrolled in a Part G program.

A percent of Part G funds that must be spent in target areas is not specified in the Act or regulations; therefore, once a State has given priority to applications from such areas, it is permissible to fund programs in other areas. This gives the State an opportunity to impact upon a variety of needs, including those of the disadvantaged, in non-target areas.

Part G Regulations (continued)

§102.98 Requirements of cooperative vocational education programs

"The State plan shall provide that the State board will approve a cooperative vocational education program only if it meets the following requirements:

(a) Purpose. The program meets the definition of a cooperative vocational education program in §102.3(g), and will be administered by the local educational agency with the participation of public or private employers providing on-the-job training opportunities that would not otherwise be available.

(b) On-the-job training standards. The program provides on-the-job training that (1) is related to existing career opportunities susceptible of promotion and advancement, (2) does not displace other workers who perform such work, (3) employs and compensates student-learners in conformity with Federal, State, and local laws and regulations and in a manner not resulting in exploitation of the student-learner for private gain; and (4) is conducted in accordance with written training agreements between local educational agencies and employers, copies of which shall be submitted to the State for filing with the local application.

(c) Other requirements. The program will be carried out in a manner consistent with the provisions set forth in the State plan pursuant to §§102.99 through 102.104."

Discussion: This regulation limits the funding of Part G programs to those which satisfy the definition of "cooperative vocational education program" in the Act and regulations. It also clarifies two conditions which must exist for Part G programs--students are paid and written training agreements are required.

§102.99 Identification of jobs

"The State plan shall provide that cooperative vocational education programs will be approved only if the State board determines on the basis of information in local applications, that necessary procedures have been established for cooperation with employment agencies, labor groups, employers, and other community agencies in identifying suitable jobs for persons who enroll in cooperative vocational education programs."

Part G Regulations (continued)

Discussion: This regulation reinforces the necessary involvement of employers and those who are knowledgeable about job training opportunities and labor market needs in identifying jobs for student-learners. Examples of procedures to be followed might include, but are not limited to, consulting with public employment service personnel, organizing and working with advisory committees, surveying employers, organizing instructional programs in relation to labor market needs, identifying and working with unions and professional groups associated with the occupational fields for which education and training are to be provided, being knowledgeable about other job training programs.

§102.100 Additional costs to employers and students

"(a) Additional costs to employers. The State plan shall set forth the policies and procedures which the State board will require local educational agencies with approval cooperative vocational education programs to follow in determining the added costs to employers for on-the-job training of students, and shall identify the categories of eligible costs for reimbursement to employers. Such policies and procedures shall be designed to assure--

(1) That the payment of added employer costs will be made only when it is apparent that, without such reimbursement, the employer will not be able to provide quality on-the-job training;

(2) That such added employer costs will include only that part of the compensation of students which represents the difference between the compensation to be paid and the fair dollar value of services rendered by the students, as determined by negotiation between local educational agencies and employers;

(3) That such added employer costs will not include the cost of construction of facilities, purchase of equipment, and other capital costs which would inure to the benefit of employers; and

(4) That such added employer costs shall be set forth in training agreements required by §102.98 (b)(4), identifying and justifying the costs factors applied, the amount of funds to be paid, and the duration of reimbursement."

Part G Regulations (continued)

Discussion: This regulation allows the States to determine their own categories of eligible employer costs in their State plans; those costs which are excluded, as specified in the regulation, relate to capital expenditures in employer facilities.

The regulation specifies that payments to employers will be made only when necessary; reimbursing employers for added costs, therefore, is not to be implemented as a standard practice. It may be interpreted that the intent of reimbursing employers is to encourage employers, both public and private, to work especially with students lacking employability skills, thereby reinforcing the concept that Part G programs will be readily available to those students who would not otherwise be selected for a cooperative vocational education program.

Added employer costs may be interpreted as a wage differential or the reimbursement of part of the wages paid to students. In identifying employer costs factors, the question of value returned by student for wages paid becomes an individual-case matter to be resolved through negotiation.

Documentation of agreed upon reimbursable costs in training agreements provides evidence for expenditures and serves as an accounting base for arriving at the total cost of operating Part G programs.

"(b) Cost to students. The State plan shall set forth policies and procedures which the State board will require local educational agencies with approved vocational education programs to follow in reimbursing students or paying on behalf of students unusual costs resulting from their participation in a cooperative vocational education program. The State plan shall also identify such costs, and shall specify when and under what circumstances payments for such costs will be made either to the student as reimbursement or directly to a vendor as payment for goods and services. Such policies and procedures will be designed to assure that payments will be made only for those costs which--

(1) Are not usually required of students preparing for the field of employment for which cooperative vocational education is being provided, such as, special tools, equipment and clothing, transportation, and safety and other protective devices; and

(2) Do not have the effect of underwriting personal obligations and expenses which students in similar circumstances are usually expected to assume."

Part G Regulations (continued)

Discussion: This regulation permits the States to identify allowable student costs in their State plans; excludable costs, as specified in the regulation, refer to those personal and school expenses which are not associated with one's participation in a cooperative vocational education program.

The payment of program-related student expenses should be considered only when it is apparent that unresolved obligations or circumstances would clearly prevent a student from participating in a Part G program. Generally such considerations would be given to economically disadvantaged students; in addition, other needs should be considered, such as unique transportation problems for all students enrolled.

This regulation makes no reference to the maximum expenditure per student or the disposition of tangible items having continuing utility after the student has completed the program. The States, therefore, should make their own provisions regarding the degree of support (all or part, set limits) and the conditions under which the student might retain permanent possession of said items.

§102.101 Participation of students in nonprofit private schools

"The State plan shall set forth the policies and procedures to be followed in cooperative vocational education programs approved and funded under part G of the Act which assure that, to the extent consistent with the number of students enrolled in nonprofit private schools in the area to be served whose educational needs are of the type which such a program is designed to meet, provision has been made for the participation of such students in accordance with the requirements of §102.7."

Discussion: This regulation requires the State and local educational agencies to make provision for the participation of students enrolled in nonprofit private schools on a proportionate basis.

Regulation §102.7 covers the participation of such students in programs funded under Part B 102(b) (disadvantaged), Part D (exemplary) and Part G. Regulation §102.7 provides for (a) the extension of vocational services to students with similar needs in nonprofit private schools through such arrangements as dual enrollment, educational media, mobile equipment and professional services, (b) the inclusion in applications submitted of the number of such students to be served and the degree and manner of their participation, (c) public administrative control of services proved by public school personnel on private school premises,

Part G Regulations (continued)

and the utilization of private school personnel outside their regular hours of duty and under public supervision and control, and (d) avoidance of forming classes on public premises according to school enrollment or religious affiliation.

§102.102 Noncommingling of funds

"The State plan shall set forth the policies and procedures to be followed in cooperative vocational education programs approved and funded under part G of the Act which assure that funds from Federal sources will not be commingled with State or local funds so as to lose their identity as such. In developing such policies and procedures, it shall not be necessary to require separate bank accounts for funds from Federal sources, so long as accounting methods will be established which assure that expenditures of such funds can be separately identified from other expenditures."

Discussion: This regulation requires the States to maintain identity of Part G Federal funds in their accounting procedures.

§102.103 Evaluation and follow-up procedures

"The State plan shall set forth the policies and procedures which the State board will require local educational agencies with approved cooperative vocational education programs to follow in providing for continuous supervision and evaluation of on-the-job training programs and for follow-up of students who have participated in such programs."

Discussion: In addition to §102.36, program evaluation, this regulation covers two distinct requirements: supervision, including coordination, and evaluation of on-the-job training phase of the program, and for after-the-fact follow-up of students. This does not necessarily mean that every in-school teacher must "coordinate" the students he teaches but does mean that each funded program must include a schedule of coordination time available to designated personnel. Follow-up studies may be undertaken by program personnel or by other specified personnel, such as counselors.

Part G Regulations (continued)

§102.104 Ancillary services and activities

"In addition to the general provisions in the State plan with regard to State administration and leadership pursuant to §102.35, program evaluation pursuant to §102.36, and teacher training pursuant to §102.38(b), the State plan shall describe its procedures for providing or making arrangements for the provisions of other ancillary services necessary to assure quality in all cooperative vocational education programs, such as preservice and inservice training of teacher coordinators and development of instructional materials."

Discussion: This regulation requires the State to make provisions for the funding of a variety of ancillary services enumerated in the Act. In general these cover State and local supervision, teacher training (preservice and inservice), counseling service, research and demonstration projects, curriculum development, evaluation--all of which are conceived to enhance the delivery of quality cooperative vocational education programs.

Cooperative Vocational Education Programs
ALLOWABLE EXPENDITURES OF FEDERAL AND MATCHING FUNDS

Funds appropriated and allotted to the States may be applied to expenditures which are reasonably attributable to cooperative vocational education programs and ancillary services and activities.

While a number of specific activities may be supported by Federal and State matching funds, a State may elect not to provide reimbursement for certain expenditures. Final determinations of policies governing expenditures are made by the State Board in relation to State laws, State plan provisions, its judgment regarding judicious expenditure of funds, and funds available. In light of these limitations, the following categories represent allowable expenditures under the Act and Regulations for cooperative vocational education under the authority of Part B and Part G:

1. Instruction and Coordination

- (a) Compensation and travel expenses of professional personnel, including teacher aides, involved in any division of work (instruction and coordination) associated with a cooperative program including periods of extended school day, week, or year.

Note: Reimbursement may be prorated for those whose responsibilities are divided between vocational education and non-reimbursable general education.

Note: Coordination involves a range of activities. In addition to the prime activity of coordinating instruction in the school and on the job, coordination may also include, but is not limited to, student recruitment and orientation, survey of employers, organization and work with advisory committees, parent consultation, evaluation (follow-up), report writing, sponsorship of youth organization activities.

- (b) Equipment, supplies, teaching aids, textbooks, student materials; office equipment and supplies necessary for the conduct of the cooperative program.
- (c) Rental of space in privately or publicly owned building, if necessary.
- (d) Compensation and travel expenses of members of advisory groups, as provided in approved State plan.

Allowable Expenditures (continued)

2. Supervision

- (a) Compensation and travel expenses of permanent and temporary staff at State and local levels.
- (b) Administrative costs including clerical assistance.

3. Teacher Education

- (a) Compensation and travel expenses of teacher educators including temporary staff such as graduate assistants and guest instructors.
- (b) Classroom equipment, supplies, and teaching aids.
- (c) Administrative costs including clerical assistance.
- (d) Travel expenses for student teachers, if necessary.

4. Other Ancillary Services and Activities

- (a) Compensation and travel expenses of those engaged in research, curriculum development or evaluation related to cooperative vocational education.
- (b) Administrative costs including clerical assistance.
- (c) Production of printed materials.

5. Unusual Student Expenses

Note: Generally, the payment of unusual expenses incurred by students as a result of their enrollment in a cooperative program represents a unique feature for the expenditure of Part G funds. However, expenditures to support the following are permissible under Part B:

- (a) Transportation between a school and the place where work experience is being provided.
- (b) Transportation between classes in which the students is enrolled.
- (c) Transportation (one round trip per semester or shorter period as determined by duration of program) from the student's home to the place where he will reside while enrolled.
- (d) Daily transportation between a student's place of residence and the school.

Allowable Expenditures (continued)

The following categories of expenditures may not be reimbursed from Federal and State matching vocational education funds:

1. Unusual Student Costs

- (a) Funds may not be used to provide food, lodging, medical and dental services and other services which may be necessary for students enrolled in Part B or Part G cooperative programs but which are not related to the provision of instruction and work experience.
- (b) Funds may not be used to support expenses related to membership in vocational youth organizations.

2. Teacher Education

- (a) Stipends for enrollees (preservice or inservice) derived from Part B or Part G funds may not be included in any approved teacher education budget.

3. Supervision of Work Experience

- (a) Part G funds may not be used for coordination of work experience which is not related to the provision of in-school vocational instruction; nor, may Part G funds be used to supervise work-study students (Part H).

Part G funds only may be applied to the following categories of allowable expenditures:

1. Unusual Student Expenses

- (a) Payment for goods and services which are normally purchased by workers in an occupational field and which are necessary to function in that occupation, such as, uniforms, special tools and equipment, required physical examinations, safety and protective devices.

2. Added Employer Costs

- (a) Funds may be used to reimburse employers for the added costs involved in the provision of training on the job. Employers may not be reimbursed for construction of facilities, purchase of equipment and other capital acquisitions.
- (b) Local educational agencies should not commit Part G resources for employer reimbursement until a mutual agreement has been reached between State and local personnel as to policies, degree of support, and cost factors.

Allowable Expenditures (continued)

(c) Categories of added employer costs may include, but are not limited to:

- (1) Additional instructional materials**
- (2) Additional supervisory services**
- (3) Additional periods of formal instruction (excluding regular orientation sessions held for all new employees)**
- (4) Reduction in productive time for employer representatives to attend, for example, sponsor training sessions conducted by the school**
- (5) Part of student wages when it is determined that the fair dollar value of services rendered by the student is less than the total wages paid, including consideration of other factors, such as the release from productive duties to engage in special projects designed to improve the employability of the students.**

Note: Unless an unusual condition prevails, reimbursement to an employer should cease when the student reaches a level of performance commensurate with other beginning workers.

Cooperative Vocational Education Programs

CONTENT OF LOCAL APPLICATIONS

Part B		Part G	
<p>Proposed Part B cooperative programs become a part of the overall local application for vocational education. Approval and level of funding for any of the programs are determined by the application of State criteria: manpower needs, vocational education needs, ability to pay, excess costs, and any other State-determined criteria. The content of the local application will include:</p>		<p>Applications for Part G programs may be submitted separately or as an addendum to the overall local application. First priority for Part G applications will be given to areas of high rates of school dropouts and youth unemployment. Thereupon the State may elect to apply Statewide criteria used for Part B programs. The content of the Part G application will include:</p>	
<u>Ref.</u>		<u>Ref.</u>	
State Plan Guide	Description of proposed programs, services, activities, evaluation;	State Plan Guide	Nature, duration, purpose, and plan of program;
and	Justification of funds requested; amounts and sources of other funds;		Value to vocational education;
Reg. 102.60	Application developed in consultation with educational and training resources available in area served by applicant; •		Qualifications to staff;
	Programs, services, activities will make substantial progress toward career preparation;		Financial arrangements;
	Five-year plan for meeting needs of students in area served by agency; relate to comprehensive area manpower plan, if any;	Reg. 102.99	Participation of public and private employers.
	Means by which proposed programs, services, activities will make progress toward meeting the vocational needs;	Reg. 102.7 (b)	Procedures for cooperation with employment agencies, labor groups, employers, and other community agencies in identifying suitable jobs.
	Other information as State may require.	Reg. 102.7 (c)	Number of students enrolled in private nonprofit schools who are expected to participate in the program and the degree and manner of their participation.
		Reg. 102.98	Assurance that public control and direction of the vocational education services provided on non-public school premises will be maintained.
			Submission of written training agreements with local application (form used).

Cooperative Vocational Education Programs

SUGGESTED CONTENT OF TRAINING AGREEMENT BETWEEN LOCAL EDUCATIONAL AGENCY AND EMPLOYER

General

1. Name of student and pertinent information, such as age
2. Name of employer and pertinent information, such as nature of enterprise or agency
3. Title and description of job objective for which student is to receive training
4. Length of training period
5. Brief statement of mutual understanding

Compensation

1. Hourly rate to be paid initially
2. Provision for review of wages
3. Prevailing rate for competent full-time employees performing similar job duties
4. Provision for student-learner certificate, if used (75% of statutory minimum wage)

Signatures

- | | |
|-----------------------|-------------------------|
| 1. Student | 4. Teacher-Coordinator |
| 2. Parent or Guardian | 5. School Administrator |
| 3. Employer | 6. Other |

Training Plan

1. Schedule of special training sessions provided by employer and various tasks to be learned and performed on the job; approximate length of time to be allotted to each. Experiences should be planned in terms of the various dimensions of work, such as:
 - (a) acts (job duties)
 - (b) tools and equipment
 - (c) materials, products
 - (d) working environments
 - (e) interpersonal relationships
 - (f) attitudes and appreciations
2. Safety instruction both at school and on the job
3. Schedule of related vocational and related academic instruction to be provided in school; approximate length of time to be allotted to each unit
4. Plan of evaluation

Suggested Content of Training Agreements (continued)

Completion Certification

1. Overall evaluation to reflect acquired efficiency or level of performance achieved
2. Number of hours of (a) special training provided by employer
(b) productive work on the job
3. Number of hours of (a) related instruction in school
(b) safety instruction in school

Other (as required by State and/or local education agency)

Addendum*

Added Training Costs

1. Identification of cost factors
2. Justification of each
3. Amount of funds requested
4. Duration of reimbursement
5. Agreement features
6. Other

Student Costs

1. Identification of items or services to be purchased by employees in the occupation
2. Justification of each
3. Cost of each
4. Agreement features
5. Other

Other (as determined by State and/or local educational agency)

*** To be included when necessary and only for Part G program**

Cooperative Vocational Education Programs

PERSONS SERVED

In keeping with the purpose of vocational education as stated in P.L. 90-576, cooperative vocational education should be made readily available to all persons whose needs, interests and abilities can be better met through alternation of school and work. In order to assure the effective participation of those for whom cooperative vocational education programs are being planned, the realities of the labor market, with respect to age, should be kept in mind.

Since very few employment opportunities are open to youth under 14, the minimum age for enrollment should be set at 14 or higher. Child labor laws influence program planning for the age group 14-15. Until recently, Federal Child Labor Regulation 3 did not permit 14- and 15-year old youth to be employed on school time, thereby inhibiting program development for this age group. As published in the November 5, 1969 Federal Register, the temporary revision of Regulation 3 permits school-time employment under experimental conditions established by the Department of Labor. The revision is intended to extend the advantages of school-supervised employment to disadvantaged youth. Many States have already applied for approval of their work related programs. Applications must be submitted by the State educational agency, generally through the office of the Chief State School Officer. Information about approval procedures may be obtained from the Bureau of Labor Standards, U.S. Department of Labor.

Persons 16 and older may enroll and enter upon legal employment in accordance with Federal and State labor laws. Placement in occupations declared hazardous by the Secretary of Labor is limited to those who are 18 or older.

Out-of-school youth and adults may be enrolled if their schedule of participation reflects a combination of school and work. Conceptually, cooperative training was developed to implement vocational curriculum objectives and to respond to the needs of persons enrolled for full-time study. It is anticipated, therefore, that the primary emphasis will be given to youth still in school and to youth returning to school after dropping out or graduating from high school.

Students in nonprofit private schools may be enrolled in Part B cooperative vocational education programs if State policies permit. In planning Part G programs, such students must receive consideration.

*

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In general, any person may be enrolled in a Part G teacher education program if the objective of his participation is to function in a cooperative vocational education program. Instructional content in such programs must be germane to cooperative vocational education.

Civil Rights Compliance

Discrimination Prohibited - Title VI of the Civil Rights Act of 1964 states:

"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

Therefore, any program or activity receiving financial assistance from the Department of Health, Education, and Welfare must be operated in compliance with this law.

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ABSTRACT

The purpose of this annual report is to evaluate a demonstration project in vocational counseling for urban youth which is composed of four major elements: (1) a career orientation program for preadolescents, (2) a cooperative work experience program for students enrolled in vocational skill development at the secondary level, (3) a job placement program for high school graduates, and (4) a counseling and training program to serve high school students who are not enrolled in vocational programs. Encompassing activities under the Occupational Vocational and Technical Education Training Division of the Pittsburgh Public Schools, these four functional components were selected from a comprehensive occupational guidance program for the elementary and secondary grades. This program review presents a project summary with recommendations, together with detailed descriptions of the three phases of the career orientation programs and the other program components. Although the programs function efficiently, the reasons why 5.2 percent of the 1971 graduates were not placed should be studied in order to remedy the situation. Various tables present the data, and extensive resource materials are appended. (AG)

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SELECTED FUNCTIONAL COMPONENTS OF A VOCATIONAL
EDUCATION COUNSELING SYSTEM FOR URBAN YOUTH

Submitted to:

Pittsburgh School District
341 S. Bellefield Avenue
Pittsburgh, Pennsylvania 15213

Submitted by:

American Institutes for Research
710 Chatham Center Office Building
Pittsburgh, Pennsylvania 15219

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September 1972

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INTRODUCTION

The purpose of this report is to evaluate the demonstration project, Selected Functional Components of a Vocational Education Counseling System for Urban Youth. The project encompasses activities under the Occupational Vocational and Technical Education Training Division (OVT) of the Pittsburgh Public Schools. This project is composed of four major elements: (1) a Career Orientation program for preadolescents, (2) a cooperative work experience program (COOP) for secondary students enrolled in marketable skill-centered programs, (3) a placement program for high school graduates, and (4) a counseling/training program to serve high school students who are not enrolled in vocational programs (Project SET). These components were selected from a comprehensive program oriented toward a continuum of counseling/guidance functions starting with exploratory experiences in the elementary grades and culminating in job placement or advancement to postgraduate training and education.

Since the level of funding for the evaluation effort precluded an in-depth evaluation of all program elements by the American Institutes for Research (AIR), the AIR evaluation team and members of the Pittsburgh Public Schools project staff agreed upon the project components to receive maximum coverage during this year's evaluation.

Major emphasis was placed on the evaluation of Phase I and Phase II of the Career Orientation program plus Project SET. Less emphasis was placed on Phase III of the Career Orientation program and the COOP and Graduate Placement programs.

The following report is divided into sections covering Phase I, Phase II and III, Project SET and the COOP and Graduate Placement programs.

SUMMARY AND RECOMMENDATIONS

Phase I

Phase I seems to be functioning well. The itinerant team has increased from three to six members, enabling more schools to be included in the exploratory program. Student attitude and achievement scores indicate that students like the program and that they are learning the desired material. The average student correctly answered 77% of the items. However, there were significant differences in the test performance among the schools participating in Phase I.

One of the major objectives of Phase I is to coordinate career exploration and classroom activities. Yet the majority of classroom teachers stated that no formal method of communication existed; in some cases the teachers were unaware of one another's schedules or planned activities. Teachers' comments also suggested they need more training or orientation in order to familiarize them with the objectives of the program. Some of the teacher-recommended changes were contrary to the program objectives.

AIR recommends that:

1. Project management initiate procedures for improving the communication network between the regular classroom and the itinerant team teachers.
2. Project management investigate the differences among the high and low achieving schools. This information can then be used for program modification.
3. Project management consider modifying the current training program to insure that all teachers understand the objectives of Phase I career exploration.

Phase II

Both student and teacher interest in Phase II seems to be high. Student attitude scores indicate students like the program; however, their average achievement test score was equivalent to only 61% of the items answered correctly. This suggests that the curricular objectives of Phase II were not met as successfully as in Phase I. In addition, there were significant differences between the high and low performance scores among the OVT exploratory centers.

The teachers indicate interest in the program and a willingness to invest time and resources in preparing themselves to teach Career Orientation. However, they do not feel that their training is appropriate to meet the practical requirements of the Phase II classroom. They felt that it was more theoretical than pragmatic and consequently, not as useful as it could have been. In addition, teachers indicated that the counseling expected of them at the conclusion of the year was a task which they felt unqualified to perform. A student's choice for in-depth exploration is based primarily on the Phase II experience; only one class session at the close of the year is set aside for students to discuss the Phase II experience with a teacher and then choose four subjects for the Phase III study. The teachers expressed interest in wanting to provide student assistance. They were not only unprepared to do so, but the limited time restriction did not help the student choose next year's curriculum.

AIR recommends that:

1. Project management identify the specific content necessary in order to make teacher training more relevant to the needs of the classroom.
2. Project management look into the counseling task assigned to the teacher, provide training in the conduct of these sessions, and attempt to arrange adequate time to fulfill the goals of this assignment.
3. Project management investigate the reasons for significant differences in student achievement among the OVT centers and the reasons why average achievement level is only 61%.

Phase III

As with Phase II, the teachers appear to be very interested and challenged by the Career Orientation program. They are willing to invest time and talent to achieve the program objectives, but they are not always clear about what those objectives really are. Project management should reexamine these objectives and design the training which will adequately prepare teachers to achieve them. In addition, the course syllabus should be reviewed and, if necessary, modified to enable teachers to use it as a guide in the classroom.

Project SET

All program participants seem to feel very positively toward Project SET. The majority of employers, staff members, parents and students expressed enthusiasm about the concepts of the project and the practical results of having students gain work experience as they complete their formal education. The results suggest that the Project SET staff is performing a commendable job in placing alienated students in employment situations.

AIR recommends that:

1. Project management investigate the possibility of improving the orientation program which all students receive prior to job interviews and placement. This program should emphasize such items as what to discuss on an interview, what kinds of questions employers might ask, and job courtesies such as tardiness, absenteeism, etc.
2. Project management consider the need for an increased economic incentive for the employers. Although many of them participate because of a social commitment, more employers would participate if a percentage of the students' salary was subsidized by other sources.
3. Project management consider the manner in which students are described to prospective employers. Although school representatives do not want to misrepresent the background and educational experience of the students, some employers felt that students had been presented a bit too negatively.

4. Project management should explore the possibility of utilizing additional resources within the school system to aid in contacting and placing students.
5. Project management should investigate the feasibility of rearranging teachers' schedules to allow more flexibility in order to provide classroom time for the remediation of working students.

Graduate Placement and COOP Programs

This year's review of the Graduate Placement and COOP programs indicate that they continue to function effectively and efficiently while adding some program changes which aid in placing more students. In order to continue to increase the efficiency of the Graduate Placement program, project management should investigate the reasons why 5.2% of the 1971 students were not placed. Attempts should be made to make the necessary program changes for increasing the number of these students placed.

CAREER ORIENTATION PROGRAM

The Career Orientation program has been developed in three phases. Phase I (6th grade) is an introductory exploratory experience in which students are exposed to a variety of manual arts while simultaneously being exposed to elements of the broad concepts relating to the "world of work": human relationships (personal development), production, communications, and economics (consumership).

In Phase II (7th grade) the students are to gain actual experience in ten vocational content areas by participating in a simulated world of work activity and learning about occupational opportunities within these vocational areas. In addition, the broad concepts identified above are more thoroughly reinforced in this phase.

Phase III (8th grade) constitutes an opportunity for students to focus vocational exploration on four subject areas which the student has selected for in-depth exploration. The selection is based upon the student's experience in the Phase II program and the use of a teacher-student contract.

Phase I

Phase I -- 6th Grade

The purpose of the Phase I Career Orientation program is to introduce the exploratory experience of occupational education to students in the 6th grade. "Hands-on" activities within the fields of Human Relations, Production, Communication and Consumership provide the basis for curriculum development and selection.

Actual program implementation began in March 1971. At that time, three itinerant teachers were assigned to coordinate activities in Business, Home Economics and Industrial Arts which were used as the vehicles for introducing the previously identified concepts to 6th graders in selected city schools. During the 1971-72 school year the number of itinerant teachers was expanded in order to staff two teams, each comprised of three teachers. These two teams serviced 15 city schools.

One of the primary goals of the Phase I program is to coordinate the Career Orientation activities with the regular classroom activities. Both Career Orientation teachers and classroom teachers were to meet regularly to exchange information regarding curriculum plans. The Phase I activities were to include the content of these plans when possible; for example, if students were learning how to use a typewriter, they might practice typing some of their spelling words.

Each team of itinerant teachers visited two or more schools per day where they conducted an 80-minute class session. During this time, the teachers supervised hands-on activities by students; in the early implementation stages of the program, these production activities extended over a period of weeks. As a result of last year's evaluative inputs from teachers and students, the program has been modified to limit the production of an item to no more than two class sessions. Each school was visited by one itinerant team once a week. When the products were completed, students were permitted to keep the items they had made.

Class sessions were conducted in a room especially set aside for use by the itinerant team. Class sizes ranged from 20 to 60 students. In some cases, the classroom teachers stayed with the class during the 80-minute session. Initially, a working model of the Phase I curriculum, implemented in the Chatham School in 1968, provided a basis for the activities planned by the itinerant teams. Following the first full year of implementation (1970-71), teachers revised the curriculum based on their classroom experiences.

Evaluation Method

The Interactive Process of Evaluation

In evaluating programs, the role of the evaluator has often been perceived in negative ways. Those most closely associated with the program, namely the teachers, frequently assume that an evaluation is to be conducted for the purpose of evaluating the teachers rather than the program itself. The existence of this attitude frequently makes it quite difficult to gather useful data on which to base recommendations for program change.

AIR supports the notion that the role played by the evaluator and the perception of this role by the project staff can be a critical factor in determining the success or failure of an experimental program. The efficiency and usefulness of the evaluator are maximized when functioning as a colleague anxious to help the program succeed rather than merely identifying and amplifying weaknesses which document failure. In order to help a program succeed, an evaluator can: (1) develop procedures for objectively determining the degree to which stated objectives are achieved and (2) provide recommendations for improving project performance during the continuation of the project. The technique employed to achieve the objectives of this evaluation is the interactive process of evaluation. In this process, project management and classroom teachers work together with the evaluation team to define behavioral objectives of the program and develop the instruments which measure student achievement of those objectives.

Development of the Instrumentation

Project staff members and the evaluation team worked together to develop instruments specifically designed to measure selected project objectives. Items for the achievement test were submitted by the teachers to the evaluation team. The evaluation team edited the items and produced the final student performance instrument plus teachers' questionnaires. The following instruments were used in the evaluation of the Phase I program.

1. A criterion reference test consisting of 26 items designed to assess student achievement of selected Phase I curricular objectives (see Appendix A).

2. A student questionnaire consisting of eight scaled items and two open-ended items (see Appendix B). This instrument was designed to assess student attitude toward Phase I and on the basis of student responses, identify problem areas.
3. A classroom teacher questionnaire consisting of five open-ended items. This instrument was designed to obtain feedback from the classroom teachers about the extent to which program activities were coordinated between classroom teachers and itinerant team teachers; their opinion about the practical functioning of the program; and their suggestions for program improvements (see Appendix C).
4. An itinerant team questionnaire consisting of eleven items (both scaled and open-ended). This instrument was designed to provide data about the operation of the program and to receive teacher inputs regarding training and program effectiveness (see Appendix D).

Administration of the Instruments

The Phase I instruments were administered by members of the itinerant teams. The team members followed their normal schedule and set aside time during their regular school visits to administer the test. The team members were requested to read the questions aloud in order that no student be hindered by a low reading level. They also checked the instruments to make certain that the appropriate information had been completed by the students so tests could be coded and scored by the data processor.

Results and Discussion

The project monitor selected the following eight out of 15 participating schools. These schools used in the sample represent a cross section of socio-economic background of Phase I schools. The 299 out of 1320 pupils represent 22% of the total enrollment.

The following eight schools and the number of students sampled in each were selected to conduct the Phase I evaluation effort:

Mt. Oliver	27
Beechwood	82
Letsche	14
Madison	48
Vann	39
Holmes	28
West Liberty	43
Forbes	<u>18</u>
Total	299

The data collected from these schools will be presented and discussed in the following order:

1. Student performance data based on an achievement test prepared in cooperation with members of the Phase I itinerant team.
2. Student attitude data based on a questionnaire consisting of responses from eight scaled items plus two open-ended items.
3. Teacher attitude data based on a questionnaire submitted to all participating itinerant and regular classroom teachers in Phase I. This questionnaire was to be completed by the teachers and returned directly to the American Institutes for Research.

Each of these categories will be discussed separately.

Student Performance

Table I presents mean total achievement test score by school. The overall mean score was 19.97 of a possible 26. Mean student performance represented a score equivalent to 77% of the items correct.

TABLE I
Phase I
Achievement Test
Mean Total Score by School

<u>School</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Number</u>
Mt. Oliver	20.04	2.88	27
Beechwood	22.20	2.69	82
Letsche	17.86	3.68	14
Madison	18.96	3.29	48
Vann	19.46	3.39	39
Holmes	15.68	7.87	28
West Liberty	22.30	3.77	43
Forbes	16.22	3.77	18
Total	19.97	4.47	299

Table II on the following page indicates that there were significant differences in the test performance of schools. West Liberty and Beechwood received the highest scores (22.30 and 22.20 respectively) and Holmes and Forbes received the lowest scores (15.68 and 16.22).

Table III indicates that there was no significant difference in the performance of boys and girls on the Phase I achievement test. This suggests that the program appears to be equally effective for boys and girls.

TABLE III
Phase I
Achievement Test
Mean Total Score by Sex

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Number</u>
Male	19.76	3.84	143
Female	20.83	3.42	151

TABLE II
Phase I
Analysis of Variance of Achievement Test Scores by School

Treatment Group	<u>Mt. Oliver</u>	<u>Beechwood</u>	<u>Letsche</u>	<u>Madison</u>	<u>Vann</u>	<u>Holmes</u>	<u>West Liberty</u>	<u>Forbes</u>
Sample Size	27	82	14	13	39	23	43	18
Mean	20.037	22.195	17.857	18.958	19.462	19.087	22.302	16.222
Standard Deviation	2.875	2.687	3.676	3.287	3.394	2.827	3.770	3.766

Analysis of Variance			
	<u>Sum of Squares</u>	<u>Degrees of Freedom</u>	<u>F Ratio</u>
Between Groups	999.2777	7	13.9098*
Within Groups	2935.1712	286	
TOTAL	3934.4490	293	
			Mean Square
			142.7540
			10.2628

*Significant .01 level

TABLE IV

Phase I

Item Analysis of Achievement Test
Percentage of Students Selecting the Correct Response

ITEM	Ht. Oliver	Beechwood	Letsche	Madison	Vann	Holmes	West Liberty	Forbes	OVERALL
1	81.5	90.2	78.6	89.6	84.6	91.3	100.0	83.3	89.1
2	100.0	96.3	85.7	81.3	87.2	78.3	93.0	66.7	88.8
3	51.9	69.5	7.1	54.2	35.9	39.1	74.4	27.8	53.7
4	77.8	80.5	78.6	64.6	79.5	95.7	88.4	72.2	79.3
5	48.1	90.2	64.3	35.4	87.2	52.2	67.4	27.8	65.6
6	81.5	97.6	85.7	81.3	76.9	100.0	97.7	83.3	89.5
7	88.9	91.5	78.6	60.4	76.9	69.6	93.0	66.7	80.6
8	92.6	95.1	92.9	91.7	79.5	100.0	97.7	94.4	92.9
9	93.3	100.0	78.6	79.2	84.6	87.0	93.0	55.6	88.4
10	59.3	63.4	28.6	56.3	64.1	52.2	62.8	44.4	58.2
11	85.2	82.9	85.7	75.0	66.7	95.7	93.0	72.2	81.6
12	33.3	56.1	42.9	43.8	43.6	17.4	53.5	33.3	44.9
13	74.1	76.8	50.0	85.4	66.7	43.5	86.0	38.9	71.8
14	85.2	93.9	57.1	87.5	69.2	87.0	88.4	55.6	83.3
15	100.0	100.0	85.7	93.8	97.4	100.0	95.3	94.4	96.9
16	93.6	97.6	92.9	77.1	76.9	82.6	93.0	83.3	88.4
17	81.5	80.5	78.6	79.2	92.3	87.0	81.4	77.8	82.3
18	96.3	97.6	100.0	85.4	97.4	95.7	97.7	100.0	95.6
19	77.8	80.5	78.6	64.6	66.7	69.6	76.7	61.1	73.1
20	63.0	63.4	42.9	50.0	69.2	65.2	79.1	38.9	61.9
21	33.3	72.0	42.9	66.7	69.2	34.8	76.7	22.2	60.5
22	66.7	84.1	71.4	56.7	69.2	78.3	83.7	55.6	74.8
23	85.2	95.1	64.3	89.6	87.2	91.3	97.7	61.1	88.8
24	77.8	78.0	78.6	66.7	53.8	47.8	83.7	44.4	69.4
25	85.2	95.1	71.4	91.7	89.7	82.6	95.3	66.7	89.1
26	85.2	91.5	64.3	79.2	74.4	65.2	81.4	94.4	82.0

Table IV (on page 14) indicates the percent of students selecting the correct response for each item by school and overall. The percent of students selecting the correct response (overall) ranged from 44.9 to 96.9. On 11 items between 50% and 80% of the students selected the correct response.

On the remaining 15 items over 80% of the students selected the correct response. Examination of individual school responses indicates wide variation on some items. For example, on item 5 90.2% of the Beechwood students selected the correct response while only 27.8% did so in Forbes. Similarly, on item 12, 56.1% of the Beechwood students responded correctly while only 17.4% did so in Holmes.

Summary of Student Performance

1. The results indicated that students performed well on the Phase I achievement test. The student mean of 19.97 represented a score equivalent to 77% of the items correct. The students evidently learned a large percentage of what the itinerant team intended to teach.
2. The data indicated that there were significant differences in performance of eight schools in Phase I. Students in the two highest scoring schools (West Liberty and Beechwood) averaged 86% and 85% of the test correct while the students in the two lowest scoring schools (Holmes and Forbes) averaged 60% and 62% of the test correct. Project management should investigate these differences in performance and attempt to determine if there are any unique conditions in these schools which might explain this variation in test scores.
3. Item analysis data revealed that there were some items on which there was wide variation across schools in the percent of students selecting the correct response. This indicates that there were items which were more difficult for students in some schools than in others. Since the intent of the Phase I program was to teach the same material in each school, these wide variations on some items should be investigated to determine if the content did differ by school.
4. There were no significant sex differences in performance on the Phase I achievement test. The program appears to be equally effective for both boys and girls.

TABLE V
Phase I
Achievement Test
Frequency Distribution by School

<u>Total Score (26 items)</u>	<u>Mt. Oliver</u>	<u>Beechwood</u>	<u>Letsche</u>	<u>Madison</u>	<u>Vann</u>	<u>Holmes</u>	<u>West Liberty</u>	<u>Forbes</u>
25 - 26	0	17	0	0	2	0	8	0
23 - 24	6	26	1	7	7	4	18	0
21 - 22	6	21	2	8	7	2	10	2
19 - 20	6	10	5	17	7	8	5	3
17 - 18	5	5	2	6	8	5	1	6
15 - 16	3	2	1	4	6	2	0	1
13 - 14	1	1	1	3	1	2	0	3
11 - 12	0	0	2	3	1	0	0	2
9 - 10	0	0	0	0	0	0	0	0
7 - 8	0	0	0	0	0	0	0	1
5 - 6	0	0	0	0	0	0	0	0
3 - 4	0	0	0	0	0	0	0	0
1 - 2	0	0	0	0	0	0	1	0
Missing Data	0	0	0	0	0	5	0	0
Total Number	27	82	14	48	39	28	43	18
Mean Score	20.037	22.195	17.857	18.958	19.462	19.087	22.302	16.222

Student Attitude

Attitude scores indicate that students enjoyed their initial experience in Career Orientation. Table VI shows the mean total attitude scores by school. The overall mean of 20.75 out of a possible 24 reveals that students liked the Career Orientation program. In addition, there were no significant differences between the attitude of boys and girls. The program seemed to be equally enjoyable for both. The data indicates that students in the Forbes and Holmes Schools had the poorest attitudes toward the project. The mean score at Forbes was 16.56% and 17.21% at Holmes.

TABLE VI
Phase I
Attitude Data
Mean Total Score by School

<u>School</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Number</u>
Mt. Oliver	22.63	1.69	27
Beechwood	22.00	1.83	82
Letsche	21.21	2.91	14
Madison	20.73	3.08	48
Vann	21.08	2.74	39
Holmes	17.21	8.57	28
West Liberty	20.81	2.92	43
Forbes	16.56	3.76	18
Total	20.75	3.96	299

Mean Total Score by Sex

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Number</u>
Male	20.76	3.12	143
Female	21.42	2.66	151

The open-ended responses provided an opportunity for students to state what they liked best about the OVT classes and what they liked least about the OVT classes. In the majority of instances, students responded by stating which subject of the OVT classes they most enjoyed--Foods and Nutrition ranked the highest. Students stated fewer aspects about the program which they

disliked; 45 stated they disliked nothing about Career Orientation and others identified a variety of subjects and activities which they disliked. However, no major trends emerged from either of these open-ended items.

Intercorrelation between Student Attitude and Performance

A Pearson product moment correlation coefficient was computed to determine the relationship between student attitude toward Phase I and student performance on the Phase I achievement test. This analysis based on a sample of 294 subjects yielded a correlation coefficient of .29 which was significant at the .01 level. This indicates that there is a significant relationship between student attitude toward Phase I and their performance on the Phase I achievement test.

Summary of Student Attitude

Students liked the program and seemed to enjoy the activities in which they participated. Student attitude was very positive on all the scaled items; on the open-ended items students indicated very few aspects of the program with which they were dissatisfied.

Classroom Teacher Attitude

A questionnaire was submitted to Phase I classroom teachers whose students were enrolled in the schools sampled in the Career Orientation program. Teachers were asked to comment on their opinion of the OVT impact on their students. Responses were received from eight out of 19 teachers.

Generally, the teachers agreed that the OVT experience was a positive one. Each teacher contributed individual illustrations. For example, some teachers thought that students became more career oriented, aware of the future and of potential job opportunities. Others cited less occupational illustrations such as student anticipation of the OVT class, student enjoyment, student pride with individual achievement, and student interest in some tutorial aspects of the class.

Teachers indicated that overall, students did learn about OVT as a result of this initial experience. They felt that although there was

little academic value to this class, the students realized that this was an introduction to a more intense investigation of jobs and the specific skills required to perform those jobs. In addition, students developed some skills in the Phase I class such as sewing and cooking.

Six teachers stated that there were areas where the OVT classes and the regular classes could be linked. OVT provided an opportunity to apply mathematical skills in computing grocery lists, measuring ingredients, etc. But no planned attempt was made to coordinate specific classroom lessons with OVT lessons. Two teachers felt that no link was being made at all. There seems to be little formal or informal communication between the regular classroom teachers and the OVT teachers. The links which do exist are based on individual teachers' plans and not an integral part of the curriculum. Six teachers stated that information on classroom lessons was not given to the itinerant teams. Two indicated that not only were they unaware of the team's schedule, but they seldom talked to any member of the itinerant team and they had not been asked to supply information about what was taught in the regular classes. Some suggested that students be given homework which linked the two classes, or that there be a follow-up on projects which would provide a link (although this was not defined). One teacher indicated that it was not necessary to formally establish a line of communication if the link was to be very general. Two teachers suggested that regular meetings be set up at each school between the two types of teachers or that in-service meetings be used to exchange information and coordinate learning activities.

The teachers suggested several program changes: (1) students were proud of their accomplishments and perhaps these completed products could be displayed, (2) the objectives should be reduced to a more manageable number because too many activities were being crammed into the program, (3) longer time periods should be spent on fewer projects, (4) team teaching ought to be implemented more extensively so that learning activities can be prepared by all teachers, and (5) fifth graders should receive some orientation about the nature of OVT Phase I and the activities involved.

Summary of Classroom Teacher Questionnaire

The classroom teachers appear to be satisfied with the overall concept and operation of the Phase I program. The responses suggest that students enjoy the activities while learning some information about OVT and job opportunities. However, the lack of communication and coordination between the classroom teachers and the OVT teachers appears to be one area where the program should be strengthened. If one of the program objectives is to establish a link between these classes and such a mechanism has been built into the Phase I syllabus, then the process ought to be operational. Instead of OVT functioning as a separate activity period where students create products and learn about jobs, they would be able to link OVT activities with their regular classroom experience. This process can be operational in two ways. One is to incorporate or set aside some time during in-service meetings for these teachers to meet and plan some strategies and activities. The other would be to set aside a few minutes during the OVT team's visit to brief one another on the activities in each class and the anticipated plans for the coming week. Even if the teachers did not combine lesson plans, this would increase the interface between the two classes.

Itinerant Teachers' Attitude

Out of six itinerant teachers, only two teachers responded to the questionnaire. Although a low response does not permit a discussion of general feelings, it does indicate some feeling and opinion about teacher participation in Phase I.

This questionnaire was designed primarily to obtain teachers' opinions on their training for this program and the program operations. Their responses indicated that in-service training should occur prior to the beginning of classes and throughout the school year. Training should include orientation about teaching strategies which help meet the objectives of the Career Orientation program. A suggestion was made that specific guidelines be written about what is to be taught in the 6th grade. The training received by these teachers included: (1) learning about the middle school philosophy and its relationship to OVT and Career Orientation, (2) group dynamics sessions, (3) learning about the nature of the student enrolled

in Career Orientation, (4) learning about teaching strategies which help meet Career Orientation objectives.

One teacher felt that the syllabus prepared for Phase I teachers had not been a satisfactory guide for teaching Career Orientation because although the conceptual framework was sound, the implementation of activities was insufficient to meet student needs. (Student needs were not defined.) The other teacher felt the syllabus was useful, but needed additional work if it was to provide a useful basis for linking OVT activities to academic activities. Teaching activities were sometimes coordinated with other team members. This teacher stated that the most effective aspect of Career Orientation was the hands-on activities; the least effective element was the lectures, paper and pencil work, and correlation with regular classroom activities. Student interest and the teacher-student relationship created by this program ranked high among the things one teacher liked best; attempting to satisfy administrators, supervisors, principals, classroom teachers, and many students plus rushing from school to school were listed as those things liked least. These teachers did not know whether the program succeeded in helping students select their course of study for the next year, but did indicate that most students seemed to enjoy the Phase I Career Orientation program.

Summary of Itinerant Teachers' Attitude

During the evaluation of this program last year, the itinerant teachers expressed a desire to actively participate in curriculum changes and modifications. At that time, the evaluation was cited by AIR as an opportunity for these teachers to express their opinions about the program and to suggest changes for program improvement. Three new teachers were added to the itinerant group--making a total of six. Yet only two members of these two teams invested time to complete this questionnaire.

Appendix A
Student Achievement Test
Phase I

Student Achievement Test

Circle the number preceding the best answer for each of the following questions.

- 1) When you buy candy, you are a:
1. seller 2. producer 3. consumer 4. manufacturer
- 2) You can communicate with another person by:
1. talking 2. writing 3. touching 4. all of these
- 3) A car is an example of:
1. a mass produced item 3. a measuring device
2. a form of communication 4. a natural product
- 4) You should wear safety glasses when you:
1. sew 2. weld 3. cut 4. saw
- 5) Sheet metal is cut with:
1. scissors 2. a knife 3. a saw 4. a razor
- 6) When you silkscreen, the ink is pushed through the screen with:
1. a knife 2. a spoon 3. a squeegee 4. your hand
- 7) Which of the following are usually not mass produced:
1. cars 2. stoves 3. radios 4. watercolor paintings
- 8) How many sides does a triangle have?
1. (1) 2. (2) 3. (3) 4. (4)
- 9) What do you use to make a straight line?
1. T-square 2. screwdriver 3. nails 4. scissors
- 10) Which of the following is an example of a synthetic material?
1. cotton 2. silk 3. wool 4. nylon

- 11) Which of the following is used to fasten two pieces of wood together?
1. shears
 2. nails
 3. welder
 4. putty
- 12) A hot iron can be used on which of the following materials?
1. polyester
 2. cotton
 3. nylon
 4. dacron
- 13) You are usually part of a group when you:
1. are in school
 2. are at work
 3. play baseball
 4. all of the above
- 14) Which of the following groups of foods contain the four basic foods?
1. candy, soft drink, hamburger, french fries
 2. bread, steak, peas, milk
 3. steak, baked potato, home fries, pop
 4. apple turnovers, fish, hot dogs, milk
- 15) It is a good idea to wash your hands before:
1. using a hammer
 2. working in a garden
 3. fixing your bicycle
 4. working with food
- 16) OVT stands for:
1. Occupational, Vocational & Technical
 2. Other Vocational Training
 3. Otherwise Very Terrible
 4. Often Very Tiring
- 17) The tool used to draw on metal is called a:
1. pencil
 2. scratch awl
 3. fingernail
 4. knife
- 18) Liquids should be measured in a:
1. measuring cup
 2. ruler
 3. scale
 4. all of the above
- 19) If you were a busboy in a cafeteria, what would your job be?
1. to prepare food
 2. to clear tables after people finish eating
 3. to supervise other workers
 4. to buy food for the cafeteria

20) A budget helps people:

- | | |
|------------------------|---|
| 1. spend money quickly | 3. decide how much money they can afford to spend for things they want and need |
| 2. earn more money | 4. all of the above |

21) You may buy a product because:

- | | |
|---|---|
| 1. you have seen the product | 3. you heard an advertisement about the product |
| 2. friends have told you about a product they liked | 4. all of the above |

TRUE or FALSE:

22) You cannot backspace on a typewriter.

- | | |
|---------|----------|
| 1. True | 2. False |
|---------|----------|

23) It is necessary for the receiver of a message to understand what the sender is saying in order for them to communicate.

- | | |
|---------|----------|
| 1. True | 2. False |
|---------|----------|

24) You use the shift key on the typewriter to make small letters.

- | | |
|---------|----------|
| 1. True | 2. False |
|---------|----------|

25) Learning to use tools the right way helps prevent accidents.

- | | |
|---------|----------|
| 1. True | 2. False |
|---------|----------|

26) You can communicate without speaking.

- | | |
|---------|----------|
| 1. True | 2. False |
|---------|----------|

Appendix B
Student Questionnaire
Phase I

**SELECTED FUNCTIONAL COMPONENTS OF A VOCATIONAL EDUCATION COUNSELING SYSTEM
FOR URBAN YOUTH**

Sponsor: Pittsburgh Board of
Education
341 South Bellefield Ave.
Pittsburgh, Penna. 15213

Evaluation Instruments Prepared
and Distributed by:
American Institutes for Research
710 Chatham Center Office Building
Pittsburgh, Penna. 15219

Career Orientation Phase I

Student Questionnaire

Name _____ School _____
Sex (1) _____ Male (2) _____ Female

DIRECTIONS: Circle the number which tells how you feel about the following statements.

	<u>Agree</u>	<u>Undecided</u>	<u>Disagree</u>
1. I enjoyed the activities in OVT.	3	2	1
2. I learned how to get along with other people.	3	2	1
3. I learned some things about myself.	3	2	1
4. I learned about the kinds of activities people do in some jobs.	3	2	1
5. I enjoyed showing other people how to do their work.	3	2	1
6. I enjoyed making products in OVT.	3	2	1
7. I enjoyed working with other people.	3	2	1
8. Some things I learned in my OVT classes helped me understand some things I learned in my regular classes.	3	2	1
9. What did you like <u>best</u> about your OVT classes?	_____		
10. What did you like <u>least</u> about your OVT classes?	_____		

Appendix C
Classroom Teachers' Questionnaire
Phase I

SELECTED FUNCTIONAL COMPONENTS OF A VOCATIONAL EDUCATION COUNSELING SYSTEM
FOR URBAN YOUTH

Sponsor: Pittsburgh Board of
Education
341 South Bellefield Ave.
Pittsburgh, Penna. 15213

Evaluation Instruments Prepared
and Distributed by:
American Institutes for Research
710 Chatham Center Office Building
Pittsburgh, Penna. 15219

Career Orientation Phase I
Classroom Teachers' Questionnaire

Please answer these questions as comprehensively as possible. You will in
no way be personally identified with your responses. Please mail the com-
pleted questionnaire to AIR in the self-addressed return envelope.

Thank you for your participation.

1. In your opinion, what impact have the OVT classes had on your students?

2. In your opinion, what have your students learned about OVT based on
this year's experience? _____

3. Do you think there is a link being made between the OVT classes and the
regular classes? _____ If so, please describe how this link is made.

4. How do you provide information for the itinerant teachers to use in
linking OVT and the regular classes? _____

What do you think would be a more effective way? _____

5. If you were directing this program, what changes would you make which
would more effectively meet the program's objectives?

Appendix D
Itinerant Teachers' Questionnaire
Phase I

SELECTED FUNCTIONAL COMPONENTS OF A VOCATIONAL EDUCATION COUNSELING SYSTEM
FOR URBAN YOUTH

Sponsor: Pittsburgh Board of
of Education
341 South Bellefield Ave.
Pittsburgh, Penna. 15213

Evaluation Instruments Prepared
and Distributed by:
American Institutes for Research
710 Chatham Center Office Building
Pittsburgh, Penna. 15219

Career Orientation Phase I
Teachers' Questionnaire

Please answer these questions as comprehensively as possible. You will in no way be personally identified with your responses. Please mail the completed questionnaire to AIR in the self-addressed return envelope.

Thank you for your participation.

1. In your opinion, when should in-service training for the Career Orientation program take place? (check appropriate answers)
☐ before classes begin
☐ after classes begin
☐ throughout the school year
2. Which of the following types of in-service training would be most helpful in teaching Career Orientation?
 - ☐ a. learning about the middle school philosophy and its relationship to OVT and Career Orientation
 - ☐ b. group dynamics sessions
 - ☐ c. learning about the nature of the student enrolled in Career Orientation
 - ☐ d. learning about teaching strategies which help meet Career Orientation objectives
 - ☐ e. other (please describe) _____

3. Which of the following types of in-service training have you received as a Career Orientation teacher?
 - ☐ a. learning about the middle school philosophy and its relationship to OVT and Career Orientation
 - ☐ b. group dynamics sessions
 - ☐ c. learning about the nature of the student enrolled in Career Orientation
 - ☐ d. learning about teaching strategies which help meet Career Orientation objectives
 - ☐ e. other (please describe) _____

4. Has the syllabus for this course been a satisfactory guide for you to use in teaching Career Orientation? _____ If not, please explain.

5. Do you usually coordinate teaching activities with other members of your team? _____

6. In your opinion, what aspect of the Career Orientation program is most effective?

7. In your opinion, what aspect of the Career Orientation program is least effective?

8. What do you like best about teaching Career Orientation? _____

9. What do you like least about teaching Career Orientation? _____

10. Has the program succeeded in helping students select their course of study for next year?

_____ Yes

_____ No

11. Do you think students enjoyed the Career Orientation program?

_____ Yes

_____ No

Appendix E
Objectives
Phase I

UNIT I - HUMAN RELATIONS-PERSONAL DEVELOPMENT
SPECIFIC OBJECTIVES

The student will:

- identify his persona; characteristics after participating in self-awareness activities
- identify similarities and differences between himself and other members of the group after participating in group activities
- identify the procedures necessary to become a group member by participating in group membership processes
- identify sensible mental and physical habits that promote good health by participating in specific health and nutrition activities.

**UNIT II -- PRODUCTION
SPECIFIC OBJECTIVES**

The student will:

- practice safe work habits by correctly using properly maintained equipment
- identify specific natural and synthetic materials
- list four differences between natural and synthetic materials
- participate in activities which involve use of physical properties of natural and synthetic materials
- identify and list functions of specific materials
- identify and list the differences between mass-produced and manually-produced articles
- use two methods of production (mass and manual) to produce specific articles
- construct a product by applying specific design principles
- identify and list the purposes of packaging articles by constructing a container for a specific product

UNIT III - COMMUNICATIONS

SPECIFIC OBJECTIVES

The student will:

- demonstrate three ways in which people communicate with sounds, signs and symbols
- list three ways in which communication is important to any civilization
- use the four major elements--message, sender, receiver, and media--of communication to prepare four communications
- define in writing three purposes for which communication is used
- demonstrate three visual and three verbal methods used to convey messages
- identify and list two methods of storing and recalling materials
- use two different methods to keep records

**UNIT IV - CONSUMERSHIP
SPECIFIC OBJECTIVES**

The student will:

- identify three components of monetary exchange from a given list
- buy and/or sell one product and one service to another class member
- demonstrate one way to allocate money by preparing a budget
- identify and list three factors which influence product purchase contained in two advertisements in the mass media
- identify five economic principles of production by using a prepared code list to calculate production costs for a specific product
- illustrate five phases of marketing (i.e., displaying, buying, selling) by setting up a market

Phase II

Phase II -- 7th Grade

Career Orientation students in the 7th grade originate from 45 feeder schools and are assigned to one of four locations:

<u>Location</u>	<u>Enrollment</u>
Arsenal	678
Washington Education Center	805
South Side Education Center	1076
Oliver	<u>291</u>
Total	2850

Each Phase II student attends one half-day Career Orientation session per week. The purpose of Phase II is to involve students in "hands-on" activities in ten vocational areas. These activities provide students with knowledge and experience about career opportunities in these areas. At the end of the year, students select four vocational areas which they would like to explore in Phase III -- 8th grade.

The ten content areas represent various occupational careers which people may choose within the disciplines of Business Education, Home Economics and Industrial Arts. These ten content areas are:

<u>Business Education</u>	<u>Home Economics</u>	<u>Industrial Arts</u>
Business Communications	Foods & Nutrition	Manufacturing
Merchandising	Clothing & Textiles	Power & Transportation
Information Processing	Community Services	Construction
		Visual Communications

OVT exploratory programming is guided by teachers and paraprofessionals who work in teams to organize and supervise activities in each of the content areas. Students participate in as many simulated world of work activities as possible within each content area, and in so doing, create products which will be sold in a retailing activity. The retailing activity represents the culmination of a business activity and is held following the conclusion of each exploratory cycle, therefore students participate in three retailing activities per year. During this time, students can purchase items which they and their colleagues have been producing throughout

the cycle. In addition, a new merchandising activity has been added to the curriculum. Students can also attempt to sell their products via a catalog or door to door. This expands the exploratory experiences related to the distribution of goods and the concept of a business which is an integral part of the Phase II curriculum.

Student activities are coordinated as a business venture within the world of work. As part of the business, each content area serves the following functions:

<u>Disciplines</u>	<u>Function</u>
Business Education	Managerial and Clerical Support
Industrial Arts	Production
Home Economics	Service and Production

For example, Business Education may organize a business which retails goods; it then handles functions such as Business Communications, Merchandising and the Information Processing required to conduct the business activities. Examples of business simulations were a boutique shop and jewelry store.

In order to efficiently organize the exploratory program, teachers were assigned to work in teams. Three teams, each consisting of one teacher from each of the three major subject areas, were formed as a self-contained unit. Students were assigned to one team and received instruction within each of the ten areas from the three teachers to whom they had been assigned.

An example of team functioning is illustrated by the following: A team is formed consisting of three teachers, one from Home Economics, one from Industrial Arts and one from Business Education. Activities are coordinated within the team to establish a simulated business activity. An office is set up within the Business Education component, goods are produced in Industrial Arts, the Home Economics segment assumes responsibility for establishing a cafeteria. Within each area, a wage scale is set up for each job classification; students are paid according to the tasks performed. The currency would be either in script or in tokens which are then used for purchasing items in the culminating activity of the nine-week cycle--the merchandise mart.

The conceptual framework of a business supplies a series of opportunities for all students to explore career opportunities in the three major content areas. At the conclusion of the school year, each student is requested to select four areas which he desires to explore further in the next stage of the Career Orientation program--Phase III -- 8th grade.

Evaluation Method

Development of the Instruments

As previously discussed, an interactive process was utilized in order to construct data collection instruments designed specifically for this phase of the project. Both staff members and the evaluation team worked together to build these instruments. A member of the evaluation team met with a representative of each content area from each school to discuss the role of the teachers in the evaluation. A representative from each school was asked to be responsible for gathering four test items on each subject; teachers in each school were therefore asked to produce 36 items. From these items, the teachers were asked to review the attitude questionnaires administered to them last year; they were requested to comment on the relevance and usefulness of the questions for this year's evaluation.

The assessment instruments for Phase II included: (1) a criterion reference test consisting of 45 items designed to measure the performance level of the students exposed to the Phase II Career Orientation program (see Appendix F); (2) a student attitude questionnaire consisting of five objective items plus two open-ended response items (see Appendix G); (3) a teacher questionnaire consisting of six objective items and five open-ended response items designed to produce data about the practical functioning of the program and to receive suggestions for program improvements (see Appendix H). Although the same teachers were assigned to both Phase II and Phase III, the teachers were asked to complete the same questionnaire twice--once in response to the work on Phase II, and once in response to the work in Phase III.

Administration of the Instruments

A member of the evaluating team visited each of the four sites to administer the achievement test and the student attitude questionnaire. The following sites participated in the evaluation:

<u>OVT Center</u>	<u>Sample Size</u>
South Side	102
Washington	84
Arsenal	85
Oliver	54
Total	325 = 11.4 % of total enrollment

During the administration of the instruments to the students, attitude questionnaires were distributed to the teachers, along with a request to return the completed form in a self-addressed envelope to AIR. The teachers were assured that they would in no way be personally identified with their responses. Thirty teachers each received two questionnaires.

Results and Discussion

The data collected from the evaluation of Phase II of the Career Orientation program fall into three major categories:

1. Student performance data based on an evaluation instrument prepared in cooperation with the Phase II Career Orientation classroom teachers.
2. Student attitude data based on a questionnaire consisting of scaled items for each of the areas covered plus two open-ended responses.
3. Teacher attitude data based on a questionnaire submitted to 30 participating teachers in the Phase II and Phase III programs.

Each of these categories will be discussed separately.

Student Performance

The overall mean score achieved by students was 27.632 out of a total possible score of 45. Students correctly responded to approximately 61% of the items. Table VII shows a breakdown of the mean total achievement scores by OVT Center. There was a significant difference in mean test performance among the four OVT Centers.

TABLE VII
Phase II
Achievement Test
Mean Total Score by OVT Center

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Number</u>
South Side	25.127	8.932	102
Washington	30.929	6.432	84
Arsenal	27.341	8.260	85
Oliver	27.130	7.626	54

Analysis of Variance

	<u>Sum of Squares</u>	<u>Degrees of Freedom</u>	<u>Mean Square</u>	<u>F Ratio</u>
Between Groups	1570.6562	3	523.5521	8.2772
Within Groups	20304.1130	321	63.2527	
TOTAL	21874.7692	324		

A further breakdown showing the feeder or home schools participating in the evaluation is provided in Table VIII.

Table XI presents the achievement test subscores by OVT Center. All four centers obtained the highest scores in Community Services and Foods and Nutrition. All four centers obtained their lowest scores in Manufacturing; three centers scored next to the lowest in Merchandising.

Summary of Student Performance Data

Mean student performance on the Phase II achievement test resulted in 61% of the items being answered correctly. Project management should investigate why average achievement was limited to only 61%. One significant difference between the evaluation results of last year and this year can be seen in the proportion of students in the OVT Centers who received instruction in all content areas. Last year, only four students in the one center received instruction in all content areas. This year, unless a feeder or home school joined the OVT program following the starting date, all students participating in Phase II received instruction in all content areas.

TABLE VIII
Phase II
Achievement Test
Mean Total Score by Home School

<u>School</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Number</u>
West Liberty	26.10	8.98	21
Brookline	29.38	9.39	13
Overbrook	23.54	9.58	26
Frick	20.95	8.80	21
Mt. Oliver	27.67	5.99	21
Sunnyside	36.58	4.08	12
Fulton	34.60	7.30	5
Rogers	24.20	6.65	15
St. Raphael	31.88	5.23	26
St. Mary's	30.54	4.81	26
Colfax	33.70	3.74	10
Regent Square	28.20	8.97	10
Swisshelm	27.75	7.30	8
Arsenal	23.29	8.02	42
St. Bede	33.67	3.48	15
Columbus	26.26	8.53	34
St. Gabriel	28.60	5.69	20

TABLE IX
Phase II
Achievement Test
Frequency Distribution by Center

<u>Total Score (45 Items)</u>	<u>South Side</u>	<u>Washington</u>	<u>Arsenal</u>	<u>Oliver</u>
44 - 45	6	8	5	2
42 - 43	8	6	7	4
40 - 41	7	11	10	5
38 - 39	4	7	7	5
36 - 37	7	8	12	5
34 - 35	7	6	4	5
32 - 33	7	12	5	3
30 - 31	6	2	5	4
28 - 29	6	2	7	6
26 - 27	5	6	0	6
24 - 25	8	3	3	0
22 - 23	3	3	3	1
20 - 21	5	2	2	2
18 - 19	5	0	1	1
16 - 17	7	2	6	2
14 - 15	4	0	3	0
12 - 13	4	0	3	1
10 - 11	0	0	0	0
8 - 9	2	0	1	1
6 - 7	0	0	0	0
4 - 5	0	0	0	1
2 - 3	0	0	0	0
0 - 1	0	0	0	0
MEAN SCORE	28.689	35.762	32.059	31.370

TABLE X

Phase II

Item Analysis of Achievement Test by OVT Center
Percentage of Students Selecting the Correct Response

<u>ITEM</u>	<u>South Side</u>	<u>Washington</u>	<u>Arsenal</u>	<u>Oliver</u>
1	57.3	71.4	54.1	40.7
2	65.0	92.9	82.4	79.6
3	70.9	86.9	77.6	74.1
4	52.9	71.4	71.8	75.9
5	44.7	65.5	45.9	48.1
6	60.2	63.1	36.5	64.8
7	53.4	82.1	68.2	55.6
8	80.6	97.6	82.4	90.7
9	81.6	91.7	89.4	85.2
10	87.4	94.0	84.7	100.0
11	45.6	53.6	71.8	48.1
12	47.6	77.4	62.4	50.0
13	71.8	86.9	87.1	83.3
14	84.5	89.3	84.7	96.3
15	65.0	79.8	68.2	79.6
16	56.3	84.5	44.7	68.5
17	30.1	47.6	45.9	38.9
18	37.9	39.3	36.5	35.2
19	59.2	78.6	74.1	66.7
20	39.8	27.4	42.4	31.5
21	31.1	41.7	58.8	31.5
22	63.1	83.3	68.2	74.1
23	68.0	76.2	80.0	74.1
24	80.6	96.4	84.7	88.9
25	46.6	81.1	47.1	51.9
26	48.5	56.0	65.9	57.4
27	42.7	56.0	42.4	37.0
28	60.2	61.9	54.1	87.0
29	56.3	67.9	52.9	40.7
30	60.2	71.4	63.5	59.3
31	47.6	71.4	63.5	59.3
32	50.5	64.3	45.9	42.6
33	50.5	71.4	52.9	55.6
34	30.1	53.6	29.4	16.7
35	65.0	71.4	64.7	77.8
36	51.5	59.5	69.4	51.9
37	35.9	42.9	44.7	31.5
38	67.0	88.1	76.5	83.3
39	67.0	89.3	78.8	74.1
40	48.5	41.7	42.4	42.6
41	39.8	53.6	61.2	42.6
42	63.1	81.0	62.4	70.4
43	64.1	82.1	68.2	83.3
44	32.0	42.9	34.1	38.9
45	62.1	71.4	56.5	75.9

TABLE XI
Phase II
Achievement Test
Subscore by OVT Center

	South Side			Washington			Arsenal			Oliver		
	M	SD	N	M	SD	N	M	SD	N	M	SD	N
Clothing & Textiles	2.58	1.30	102	3.23	.95	84	2.87	1.16	85	2.70	.98	54
Community Services	3.67	1.37	102	4.29	.93	84	3.61	1.32	85	3.96	1.13	54
Foods & Nutrition	3.18	1.29	102	3.87	.99	84	3.74	1.23	85	3.57	1.19	54
Manufacturing	2.25	1.33	102	2.77	1.01	84	2.44	1.21	85	2.41	1.00	54
Construction	2.92	1.40	102	3.80	1.12	84	3.39	1.36	85	3.20	1.29	54
Visual Communications	2.71	1.23	102	3.13	1.30	84	2.79	1.45	85	2.81	1.21	54
Merchandising	2.46	1.48	102	3.32	1.35	84	2.56	1.50	85	2.52	1.34	54
Business Communications	2.73	1.52	102	3.21	1.13	84	3.12	1.25	85	2.83	1.40	54
Information Processing	2.64	1.43	102	3.31	1.36	84	2.82	1.49	85	3.11	1.44	54
TOTAL	25.13	8.93	102	30.93	6.43	84	27.34	8.26	85	27.13	7.63	54

Student Attitude

Data from student attitude questionnaires suggest that students enjoyed the Phase II activities. Table XII summarizes the questionnaire data by OVT Center and overall. Within a range of three choices, each assigned a numerical value (1-3 with 3 the most positive); the vast majority of overall item mean scores were over 2. In addition, most students indicated that Phase II activities helped them to select the four subject areas they would like to explore further in Phase III. Only four out of 325 students said Phase II did not help make this decision; 203 students responded that it helped a lot.

The open-ended response items provided students the opportunity to indicate what they liked best and least about the program. Most students responded by stating which areas they enjoyed best or least. Some students suggested that the best aspect of Phase II was the chance to learn about career opportunities. This indicates that one of the major program objectives was achieved. Student responses were not as varied this year as last. The responses to aspects of the program enjoyed least by students were identifications of specific subject areas. No major trends were identified which indicated a general negative attitude about the program.

TABLE XII
Phase II
Summary of Student Questionnaire Data
by Center plus Overall Mean

The following scaled items are included in the attitudinal questionnaire:

<u>Item</u>					
1	offered these choices:				
	I like it very much (3)	It was OK (2)	I didn't like it (1)		Overall
	<u>South Side</u>	<u>Washington</u>	<u>Arsenal</u>	<u>Oliver</u>	<u>Mean</u>
1. Business Education					
Information Processing					
Choice 1	15	30	12	2	1.97
2	55	42	55	24	
3	29	9	16	22	
Business Communications					
Choice 1	8	16	12	1	2.05
2	54	32	22	22	
3	34	13	38	31	
Merchandising					
Choice 1	14	26	4	1	2.18
2	43	41	33	16	
3	42	17	45	29	
<u>Home Economics</u>					
Clothing and Textiles					
Choice 1	28	15	18	2	2.05
2	40	36	28	16	
3	29	32	39	23	
Food and Nutrition					
Choice 1	3	3	7	1	1.90
2	30	10	28	22	
3	65	70	48	29	
Health & Community Svcs.					
Choice 1	31	17	22	5	2.05
2	41	16	31	24	
3	23	49	29	21	
<u>Industrial Arts</u>					
Construction					
Choice 1	11	8	26	5	2.25
2	39	29	20	15	
3	48	46	36	28	

	<u>South Side</u>	<u>Washington</u>	<u>Arsenal</u>	<u>Oliver</u>	<u>Overall Mean</u>
Manufacturing					
Choice 1	10	7	11	7	
2	40	35	28	11	2.32
3	49	40	42	33	
Visual Communications					
Choice 1	8	11	7	6	
2	33	28	23	13	2.26
3	55	40	52	23	

Items

2 - 4 offered these choices:

Agree (3)

It was OK (2)

Disagree (1)

	<u>South Side</u>	<u>Washington</u>	<u>Arsenal</u>	<u>Oliver</u>	<u>Mean</u>
2. Business Education					
a. Choice 1	10	21	2	3	
2	51	41	41	15	2.32
3	41	22	42	36	
b. Choice 1	2	11	7	1	
2	29	15	24	7	2.59
3	71	58	54	46	
c. Choice 1	11	7	4	2	
2	30	16	30	14	2.58
3	61	61	51	38	
d. Choice 1	17	20	18	3	
2	32	32	28	15	2.33
3	53	32	39	35	
e. Choice 1	21	16	10	15	
2	24	14	25	6	2.53
3	57	49	49	33	
3. Home Economics					
a. Choice 1	9	8	3	1	
2	36	16	21	20	2.55
3	55	60	61	31	
b. Choice 1	6	3	4	2	
2	30	13	28	12	2.61
3	64	68	53	38	
c. Choice 1	9	4	4	6	
2	33	15	22	13	2.56
3	57	65	59	33	
d. Choice 1	16	14	19	2	
2	36	24	21	16	2.31
3	46	46	45	32	

	<u>South Side</u>	<u>Washington</u>	<u>Arsenal</u>	<u>Oliver</u>	<u>Overall Mean</u>
e. Choice 1	14	8	7	8	
2	20	12	20	14	2.37
3	62	59	57	29	
4. Industrial Arts					
a. Choice 1	12	4	8	4	
2	42	30	27	16	2.43
3	46	50	49	32	
b. Choice 1	11	3	12	4	
2	29	18	16	10	2.54
3	60	62	57	38	
c. Choice 1	11	2	11	6	
2	30	18	19	10	2.53
3	59	64	54	36	
d. Choice 1	16	14	17	4	
2	28	27	21	11	2.37
3	56	43	46	37	
e. Choice 1	22	12	9	4	
2	25	12	20	11	2.30
3	48	54	50	36	

Item

5 offered these choices:

It helped a lot (3)

It helped a little (2)

It didn't help (1)

	<u>South Side</u>	<u>Washington</u>	<u>Arsenal</u>	<u>Oliver</u>	<u>Overall Mean</u>
5. Choice 1	0	1	3	0	
2	30	20	27	14	2.17
3	62	61	49	31	

Teacher Attitude

An attitude questionnaire was submitted to 30 Phase II Career Orientation teachers. The purpose of this questionnaire was to determine teachers' opinions about their training and the training they thought would be most helpful teaching in the Career Orientation program. In addition, they were asked to comment about general program operations and suggest recommendations for change. Fifteen (50%) teachers responded to this questionnaire.

Training

The teachers were asked to comment on two aspects of training: the type of in-service training they received both prior to and during their assignment to the Career Orientation program, and the type of training they thought would be most helpful in teaching Career Orientation. Eleven out of thirty teachers stated that during their training, they learned about the middle school philosophy and its relationship to OVT and Career Orientation only. Five teachers received training in group dynamics sessions, five learned about the nature of the student enrolled in Career Orientation, and only one stated that training had been given in teaching strategies unique to the Career Orientation program. A few teachers indicated that their personal work experience prior to joining the Career Orientation program provided help in this teaching assignment. Although some resource people had been invited to in-service training sessions, the teachers perceived this assistance as minimal. The teachers feel that the training they received did not adequately prepare them to teach this unique type of program. The sessions focused on the theoretical aspects of exploratory education and minimized the pragmatic strategies required to guide students through career orientation.

Program Operations

Teacher response concerning satisfaction and usefulness of the course syllabus revealed that nine teachers felt the syllabus had not been useful in teaching Career Orientation. The reasons given for this negative feeling about the course syllabus were: (1) the objectives were unrealistic

and difficult to obtain when using the methods suggested and (2) the suggested teaching strategies were too general with few specific methods for implementation. One teacher indicated that he/she did not have a syllabus. Five teachers stated that the curriculum guide had been a useful tool in fulfilling the Career Orientation objectives.

Most teachers usually coordinated their teaching activities with other members of their team. Twelve out of fourteen teachers coordinated activities; two did not.

General

An open-ended response asking teachers to state their opinion of the most effective aspect of Career Orientation indicated that the hands-on activities were overall considered the best segment of this program. Other aspects mentioned by one or two teachers included the retailing activity, outside films, speakers and discussions, plus the learning experience of working together on projects.

The teachers feel that the least effective aspect of the program is the student counseling required at the conclusion of the school year. This counseling activity is to be completed in one day and the teachers indicated that this was simply not enough time to properly counsel students in their selection of next year's program. Other aspects suggested by teachers as being the least effective included the retailing activity, the class size (too large), and the large number of careers which were to be covered in a short time period. Two teachers mentioned specific subject areas which they felt were weak -- Business Communications and Visual Communications.

When asked what they liked best about teaching Career Orientation, six teachers stated that the active involvement with students was very stimulating. The challenge offered by this program surpassed the challenge of teaching in a regular classroom. Some teachers liked their own learning experiences -- learning about products, types of careers, educational requirements, working closely with others, etc.

The thing the teachers liked least about teaching Career Orientation was that it didn't provide an opportunity to become acquainted with the students because the classes meet only once a week; in addition, a rotating schedule restricted the time spent on each subject area. As revealed in last year's evaluation, teachers commented that the stress on mass production rather than career orientation reduces the opportunity to achieve the primary objective of the program. A few teachers indicated that they were distressed with the administrative work they had to do -- such as counseling and record keeping.

Generally, twelve teachers believed that the program succeeded in helping students select their course of study for the next year and that the students had enjoyed the Career Orientation program.

Summary

The teachers seem to regard the Career Orientation program as professionally challenging and rewarding. Their responses indicate that they are interested in continual training in methods which will increase their effectiveness as teachers. The results also suggest that although they have been briefed in the middle school philosophy, the teachers have not received enough pragmatic tools with which to conduct and implement the objectives of Career Orientation. In addition to this questionnaire, informal conversations with some of these teachers throughout the course of this evaluation supported this general feeling. These teachers are embarking on a completely new and innovative learning situation which requires innovative training in methods and strategies. A number of teachers stressed that in-service training should focus more on how to achieve program goals than on group dynamics and the philosophy of the middle school.

Because 50% of the respondents indicated that the syllabus was unsatisfactory, perhaps a review of the syllabus or the curriculum objectives ought to be conducted by project management. Teachers may be asked to cite specific incidents where the syllabus is unworkable and revisions could be based on that.

Appendix F
Student Achievement Test
Phase II

Student Achievement Test

DIRECTIONS: You have been selected to help the teachers make changes in next year's OVT program. These questions were designed to find out how much you learned; your answers will be used to decide what changes need to be made. You will not receive a grade on this test.

Please circle one answer to each of the following items.

CLOTHING AND TEXTILES

- **1.** If you like to work with people rather than products, which of the following jobs would you probably enjoy?
1. machine operator 2. cutter 3. seamstress 4. manager
- **2.** Which of the following jobs would a creative person probably choose?
1. machine operator 2. cutter 3. quality control inspector 4. dress designer
- *3.** A person who sews clothing is called a:
1. pattern maker 2. retailer 3. cutter 4. seamstress
- *4.** When sewing a project, the correct order of construction is:
1. stitching, pressing, laying out pattern, cutting
2. laying out pattern, cutting fabric, pinning fabric together, stitching, pressing
3. cutting, laying out, pinning, stitching, pressing
- *5.** What job in the clothing and textiles industry usually needs additional training beyond high school?
1. a cutter 2. a fashion designer 3. a machine operator 4. all of these

COMMUNITY SERVICES

- *6.** If there is no reaction (no coagulation or lumps) to either anti-A or anti-B serum, then a person would have:
1. type A blood 2. type B blood 3. type AB blood 4. type O blood
- *7.** More education is required for:
1. a registered nurse 2. a practical nurse 3. an orderly 4. a nurse's aide
- *8.** A career in the health services field is:
1. a social studies teacher 2. a lawyer 3. an engineer 4. an x-ray technician
- **9.** A person who may assist the nurse in giving bedside care to a patient in the hospital is called a:
1. receptionist 2. nurse's aide 3. lab technician 4. social worker

****10. Most people have a normal temperature of:**

1. 35.7 2. 100 3. 98.6 4. 75.8

FOODS AND NUTRITION

****11. Which of the following employees supervises the food preparation in a cafeteria?**

1. business manager 2. chef 3. waitress 4. hostess

****12. A meal served buffet style means:**

1. trays of food are passed to guests
2. guests select their choice of food from a menu
3. a waitress submits a guest's food order to the chef
4. guests make individual food selections from a variety of prepared foods centrally located in a dining room

***13. Using the basic four food groups, choose the most well-balanced menu from the list below:**

1. potato salad, baked beans, peas, milk
2. hamburger, baked potato, tossed salad, milk
3. cooked squash, cole slaw, peaches, milk
4. corn chips, baked beans, chocolate cake, milk

****14. If you were a busboy in a cafeteria, what would your job be?**

1. to prepare food
2. to clear tables after people finish eating
3. to supervise other workers
4. to buy food for the cafeteria

***15. Which of the following jobs frequently needs training beyond high school?**

1. a short-order cook
2. waiter/waitress
3. a soda-jerk
4. a chef

MANUFACTURING

****16. To draw a design on metal work, which of the following tools would you use?**

1. scratch awl 2. claw hammer 3. ball-peen hammer 4. cross-peen hammer

- **17.** When a machinist files a thin piece of metal he places it tight to the vise to avoid:
1. chattering 2. rust 3. burs 4. pressure
- *18.** Which of the following defines some type of mass-production?
1. Each person on the production line may do one or two operations.
 2. A worker passes from one station to the next station until the article is finished.
 3. The product moves on a conveyer from one worker to another.
 4. All of the above.
- *19.** Which of the following list of careers in manufacturing requires a college degree?
1. furnace installer 2. auto body mechanic 3. mechanical engineer 4. pattern maker
- *20.** Patternmaking is an activity associated with:
1. plastics 2. metals 3. foundry 4. welding

CONSTRUCTION

- *21.** Mill marks found in wood are caused by:
1. sawing 2. termites 3. tree bacteria 4. sanding
- *22.** Which of the following is the proper order to use in finishing a wood product?
1. wax, stain, sand, varnish 3. stain, sand, varnish, wax
 2. sand, stain, varnish, wax 4. varnish, stain, sand, wax
- *23.** A person who enjoys making things with wood might consider employment as a:
1. bricklayer 2. cabinet maker 3. foundry worker 4. typesetter
- *24.** A handsaw, hammer, wooden horse and nails are tools and equipment used by a:
1. carpenter 2. bricklayer 3. silk-screener 4. draftsman
- *25.** What wood working tool looks like an ice pick?
1. mitre box 2. awl 3. phillips screwdriver 4. framing square

VISUAL COMMUNICATIONS

- **26.** A compositor would work in which of the following settings?
1. a textile plant 2. a print shop 3. an automobile shop 4. an architect's office

BUSINESS COMMUNICATIONS

- *36. Communicating is the process of:
1. transmitting written information
 2. transmitting oral information
 3. both of these
 4. none of these
- *37. The federal government requires that each worker have:
1. a time card
 2. a social security card
 3. a personal data sheet
 4. a high school diploma
- *38. Which of the following kinds of information should not be included on a personal data sheet?
1. name
 2. address
 3. educational background
 4. religion
- *39. A secretary should be trained in:
1. typing
 2. Business English
 3. filing
 4. all of these
- **40. Which of the following occupations requires a college education?
1. secretary
 2. file clerk
 3. accountant
 4. receptionist

INFORMATION PROCESSING

- **41. Which of the following is not in correct alphabetical order?
1. Reagan, Reagen, Regan, Regen
 2. Schmidt, Schmitt, Smidt, Smith
 3. Andersen, Anderson, Andrew, Andrews
 4. Johnsen, Johnsten, Jonston, Johns
- *42. When a punched card is used for recording information, the data on the card are represented by:
1. printed captions
 2. magnetized spots
 3. punched holes
 4. none of these
- *43. Data is another word for:
1. a book
 2. a machine
 3. information
 4. a typewriter
- *44. A job reference is:
1. a recommendation
 2. a list of employees
 3. an application
 4. all of these
- *45. The person who records information on an IBM card is called a:
1. file clerk
 2. receptionist
 3. keypunch operator
 4. bookkeeper

Appendix G
Student Questionnaire
Phase II

Career Orientation Phase II

Student Questionnaire

Name _____ Home School _____
 Sex (1) _____ Male (2) _____ Female
 OVT School (1) _____ South Side (2) _____ Washington (3) _____ Arsenal (4) _____ Oliver

1. Circle the number which best expresses your feeling about each of the following:

	<u>I like it very much</u>	<u>It was OK</u>	<u>I didn't like it</u>
<u>Business Education</u>			
Information Processing	3	2	1
Business Communications	3	2	1
Merchandising	3	2	1
<u>Home Economics</u>			
Clothing and Textiles	3	2	1
Food and Nutrition	3	2	1
Health and Community Services	3	2	1
<u>Industrial Arts</u>			
Construction	3	2	1
Manufacturing	3	2	1
Visual Communications	3	2	1

2. Circle the number which represents your opinion of what you learned about the world of work in Business Education:

	<u>Agree</u>	<u>It was OK</u>	<u>Disagree</u>
a. I enjoyed the activities in this area.	3	2	1
b. I learned about the kinds of jobs available in this field.	3	2	1
c. I learned about what kinds of tasks people perform in various jobs.	3	2	1
d. I know what additional schooling is needed for various jobs in <u>Business Education</u> .	3	2	1
e. I learned enough to make a decision about whether I am interested in learning more about <u>Business Education</u> next year in OVT.	3	2	1

3. Circle the number which represents your opinion of what you learned about the world of work in Home Economics:

	<u>Agree</u>	<u>It was OK</u>	<u>Disagree</u>
a. I enjoyed the activities in this area.	3	2	1
b. I learned about the kinds of jobs available in this field.	3	2	1
c. I learned about what kinds of tasks people perform in various jobs.	3	2	1
d. I know what additional schooling is needed for various jobs in <u>Home Economics</u> .	3	2	1
e. I learned enough to make a decision about whether I am interested in learning more about <u>Home Economics</u> next year in OVT.	3	2	1

4. Circle the number which represents your opinion of what you learned about the world of work in Industrial Arts.

	<u>Agree</u>	<u>It was OK</u>	<u>Disagree</u>
a. I enjoyed the activities in this area.	3	2	1
b. I learned about the kinds of jobs available in this field.	3	2	1
c. I learned about what kinds of tasks people perform in various jobs.	3	2	1
d. I know what additional schooling is needed for various jobs in <u>Industrial Arts</u> .	3	2	1
e. I learned enough to make a decision about whether I am interested in learning more about <u>Industrial Arts</u> next year in OVT.	3	2	1

5. Circle the number that expresses your opinion about whether this year's OVT activities will help you choose the four subject areas you would like to participate in next year in OVT.

3 It helped a lot 2 It helped a little 1 It didn't help

6. What did you like best about OVT this year? _____

7. What did you like least about OVT this year? _____

Appendix II
Teachers' Questionnaire
Phase II

SELECTED FUNCTIONAL COMPONENTS OF A VOCATIONAL EDUCATION COUNSELING SYSTEM
FOR URBAN YOUTH

Sponsor: Pittsburgh Board of
Education
341 South Bellefield Ave.
Pittsburgh, Penna. 15213

Evaluation Instruments Prepared
and Distributed by:
American Institutes for Research
710 Chatham Center Office Building
Pittsburgh, Penna. 15219

Career Orientation Phase II

Teachers' Questionnaire

Please answer these questions as comprehensively as possible. You will in no way be personally identified with your responses. Please mail the com-
pleted questionnaire to AIR in the self-addressed return envelope.

Thank you for your participation.

1. In your opinion, when should in-service training for the Career Orientation program take place? (check appropriate answers)

☐ before classes begin
☐ after classes begin
☐ throughout the school year

2. Which of the following types of in-service training would be most helpful in teaching Career Orientation?

☐ a. learning about the middle school philosophy and its relationship to OVT and Career Orientation
☐ b. group dynamics sessions
☐ c. learning about the nature of the student enrolled in Career Orientation
☐ d. learning about teaching strategies which help meet Career Orientation objectives
☐ e. other (please describe) _____

3. Which of the following types of in-service training have you received as a Career Orientation teacher?

☐ a. learning about the middle school philosophy and its relationship to OVT and Career Orientation
☐ b. group dynamics sessions
☐ c. learning about the nature of the student enrolled in Career Orientation
☐ d. learning about teaching strategies which help meet Career Orientation objectives
☐ e. other (please describe) _____

4. Has the syllabus for this course been a satisfactory guide for you to use in teaching Career Orientation? _____ If not, please explain.
- _____
- _____
- _____
5. Do you usually coordinate teaching activities with other members of your team? _____
6. In your opinion, what aspect of the Career Orientation program is most effective?
- _____
- _____
7. In your opinion, what aspect of the Career Orientation program is least effective?
- _____
- _____
8. What do you like best about teaching Career Orientation? _____
- _____
- _____
9. What do you like least about teaching Career Orientation? _____
- _____
- _____
10. Has the program succeeded in helping students select their course of study for next year?
- _____ Yes _____ No
11. Do you think students enjoyed the Career Orientation program?
- _____ Yes _____ No

Appendix I

Objectives

Phase II

GENERAL OBJECTIVES

Safety

The student will practice safe work habits by correctly using properly maintained equipment.

Business Communications

The student will demonstrate ability to perform tasks related to business by composing, typing, and duplicating selected examples of written and oral communications.

Health and Community Services

The student will explore career opportunities in Health and Community Services by identifying a specified number of jobs performed by these personnel.

Construction

The student will identify five occupations in the Construction trades from a given list. The student will demonstrate ability to use tools and materials of this field by constructing a specific product.

Merchandising

The student will list five career opportunities in the field of Merchandising. The student will demonstrate knowledge of marketing activities by participating in the distribution of a company's goods and services.

Clothing and Textiles

The student will identify career opportunities in the Clothing and Textiles industry from a given list. The student will demonstrate ability to perform tasks related to the Clothing and Textiles industry by laying out, cutting, sewing, and inspecting a specific article of clothing.

Visual Communications

The student will identify five career opportunities in the Communications field. The student will demonstrate knowledge of selected communications by performing specific tasks in engraving, silkscreening, relief printing, duplicating, designing, photo printing, binding, and proofreading.

Information Processing

The student will list five career opportunities in the field of Information Processing. The student will demonstrate ability to manually and mechanically process information by collecting, recording, tabulating and filing data.

Foods and Nutrition

The student will identify five careers available in the foods industry from a given list. The student will demonstrate ability to use selected tools and techniques in the foods industry by preparing a specific menu.

Manufacturing

The student will list five careers in the Manufacturing field. The student will demonstrate ability to use tools and materials in this field by producing a specific product.

Power and Transportation

The student will list five career opportunities related to the generation and control of various forms of power. The student will demonstrate knowledge of specific forms of power by using selected equipment to perform a specific task.

BUSINESS COMMUNICATIONS

The student will demonstrate ability to perform tasks related to business by composing, typing, and duplicating selected examples of written and oral communications.

SPECIFIC OBJECTIVES

The student will demonstrate ability to perform selected tasks in specified areas of Business Communications by:

- performing five clerical duties which require the use of various types of equipment employed by receptionists and clerk typists.
- role playing a news reporter or related occupation in order to interview people, then composing the information gained from the interview into a news item.
- role playing a news reporter or a related occupation in order to report in the form of a news item on a specific topic.
- role playing an office manager and directing the proper use of office equipment, production of materials and work flow within the communications office.

HEALTH AND COMMUNITY SERVICES

The student will explore career opportunities in Health and Community Services by identifying a specified number of jobs performed by these personnel.

SPECIFIC OBJECTIVES

The student will demonstrate knowledge about tasks performed in selected occupations in Health and Community Services by:

- role playing a medical clerk and recording and filing health records.
- performing selected patient health care tasks normally executed by nurses' aides, first aid attendants, and other personnel in related fields.
- role playing a research lab technician and personnel in related fields by conducting tests according to prescribed standards.
- identifying community related activities and affairs from a given list for which recreation leaders, health education reporters, community services reporters, and other related personnel are responsible.

CONSTRUCTION

The student will identify five occupations in the Construction trades from a given list. The student will demonstrate ability to use tools and materials of this field by constructing a specific product.

SPECIFIC OBJECTIVES

The student will demonstrate knowledge about selected jobs and tasks in the Construction trades by:

- role playing a cabinetmaker apprentice, woodworker machine operator and similar personnel in related fields by producing a finished item from raw wood.
- serving as a stockcutter, layout man, or similar personnel in related fields by preparing rough stock for the construction process.
- serving as a cabinet assembler or similar personnel in related fields by assembling specific units into a final product.
- serving as a painter apprentice or similar personnel in related fields by performing the necessary tasks to prepare a surface, then paint or finish it.
- performing the necessary inspection tasks to maintain quality control of a product.
- acting as a foreman or similar managerial personnel by taking responsibility for the maintenance of tools, use of materials, labor employment, and supervising overall production in the work area.
- identifying, then making the necessary repairs on a defective product.

MERCHANDISING

The student will list five career opportunities in the field of Merchandising. The student will demonstrate knowledge of marketing activities by participating in the distribution of a company's goods and services.

SPECIFIC OBJECTIVES

The student will demonstrate knowledge about selected jobs and tasks in Merchandising by:

- role playing a salesclerk, cashier or equivalent personnel in related sales occupations and using various equipment and materials when applying selected sales techniques in specific sales situations.
- serving as a stock clerk or equivalent personnel in other related occupations to compile and compute inventory data related to the company goods and services.
- serving as an advertising layout man or equivalent personnel in related occupations and surveying market factors, designing advertisements and displays of the company's goods and services.
- role playing a store manager or related managerial personnel by supervising the flow of work activity within the Merchandising area, and by assuming responsibility for all maintenance of equipment and use of materials.

CLOTHING AND TEXTILES

The student will identify career opportunities in the Clothing and Textiles industry from a given list.
The student will demonstrate ability to perform tasks related to the Clothing and Textiles industry by laying out, cutting, sewing, and inspecting a specific article of clothing.

SPECIFIC OBJECTIVES

The student will demonstrate knowledge about selected jobs and tasks in the Clothing and Textiles industry by:

- serving as a goods layer, a cutter, a pinner, or equivalent personnel by laying out, pinning, and cutting design patterns on fabric.
- serving as a piece-goods assembler or equivalent personnel in related fields by following the instructions to match the marked, cut goods, and then sewing assembled pieces.
- acting as a sewing machine operator or equivalent personnel in related fields by performing the steps necessary to prepare the machine for sewing, then safely operating the machine.
- serving as a hand finisher, trimmer, or equivalent personnel in related fields by using manual sewing techniques or specialized cutting techniques to complete clothing items.
- serving as a presser or equivalent personnel by pressing and folding goods.
- acting as a quality-control inspector or equivalent personnel in related fields by inspecting completed textile items for quality.
- acting as a floor supervisor or equivalent personnel in related fields by assuming responsibility for quantity and quality of mass-produced items.

VISUAL COMMUNICATIONS

The student will identify five career opportunities in the Communications field. The student will demonstrate knowledge of selected communications by performing specific tasks in engraving, silkscreening, relief printing, duplicating, designing, photo printing, binding, and proofreading.

SPECIFIC OBJECTIVES

The student will demonstrate ability to perform selected tasks in Visual Communications by:

- acting as a cutter, silkscreen printer, or a similar position in a related field and cutting and printing a silkscreen stencil.
 - acting as an engraver operator or a similar job in related fields and preparing an engraved plate.
 - acting as a relief printing apprentice, compositor, or similar personnel in related fields and preparing a relief plate, then printing it.
 - acting as a platemaker, duplicator operator or a person in similar jobs in related fields by producing material on a duplicator.
 - printing photographs and performing other tasks required by a person who works in a darkroom.
 - designing a layout.
- by performing selected processes used by binders and persons who have similar jobs in related fields.
- proofreading, checking photographs, and performing related activities necessary to print good copy.
 - acting as a foreman or a similar managerial position and assuming responsibility for the maintenance of tools and materials, labor employment when supervising production in the work area.

INFORMATION PROCESSING

The student will list five career opportunities in the field of Information Processing. The student will demonstrate ability to manually and mechanically process information by collecting, recording, tabulating and filing data.

SPECIFIC OBJECTIVES

The student will demonstrate ability to perform specific tasks in Information Processing by:

- collecting and recording employee-related information, assisting applicants in job placement, and performing other specified tasks normally performed by a personnel clerk or a similar employee.
- recording and tabulating all information related to employees' working time, wages and salary, and performing other specified tasks normally performed by a payroll clerk or similar personnel in related occupations.
- serving as a file clerk, card punch operator or similar personnel in related occupations by classifying, recording and filing information.
- serving as office manager or a job in a related managerial occupation by supervising an office work force, checking quality of work accomplished, and assuming responsibility for all equipment maintenance and materials used by or for the employees.

FOODS AND NUTRITION

The student will identify five careers available in the foods industry from a given list. The student will demonstrate ability to use selected tools and techniques in the foods industry by preparing a specific menu.

SPECIFIC OBJECTIVES

The student will demonstrate ability to perform specific tasks in Foods and Nutrition by:

- assuming supervisory responsibilities for the equipment maintenance, preparation of foods, service and employment in the foods area.
- serving as head cook/cook helper and selected other jobs in the preparation of specified quantity and quality of food items.
- serving as a kitchen helper or a similar person in other sanitation and maintenance fields and assisting the manager and cook in performing the duties necessary to maintain a safe and sanitary kitchen.
- acting as a bus boy/girl or a related job by servicing tables for customers.
- acting as a hostess/waiter/waitress/cashier or a similar job in a related field and selling and serving foods efficiently.
- serving as a counterman/girl or a job in a related field which requires performing specific tasks to operate a fast food service.

MANUFACTURING

The student will list five careers in the Manufacturing field. The student will demonstrate ability to use tools and materials in this field by producing a specific product.

SPECIFIC OBJECTIVES

The student will demonstrate ability to perform specific tasks in selected occupations of Manufacturing by:

- role playing a caster or foundry worker and pouring a casting.
- using selected manual and machine processes to shape metal as done by a machine shop apprentice and similar personnel in related occupations.
- constructing a metal product by using the techniques of a metal finisher, fabricator, assembler or similar personnel in related occupations.
- role playing a plastics mechanic and similar personnel in related occupations and using selected manual and machine processes to shape materials.
- role playing a plastics fabricator and forming and assembling plastic units into a finished product.
- maintaining quality control and repairing defective products as an inspector, repairman or similar personnel in related occupations.
- taking managerial responsibility for the use of tools and materials, employment of labor, and generally supervising work production.

POWER AND TRANSPORTATION

The student will list five career opportunities related to the generation and control of various forms of power. The student will demonstrate knowledge of specific forms of power by using selected equipment to perform a specific task.

SPECIFIC OBJECTIVES

The student will demonstrate knowledge about tasks performed by people in the fields of Power and Transportation by:

- assembling basic electrical devices used by apprentice electricians, electric assemblers, and people employed in related fields.
- testing specific equipment used by electrical continuity testers and appliance repairmen; identifying and replacing defective parts.
- role playing a service station attendant, a gasoline engine serviceman or a person employed in a related field by performing specific servicing operations on engines.
- role playing a foreman and other managerial positions by directing the proper use of tools, production of materials, labor employment and generally supervising the work flow in a specified production area.

Phase III

Phase III -- 8th Grade

Phase III of the Career Orientation program is a skill emphasis segment based upon teacher-student contracts. These contracts provide the framework for the study of a specific content area which a student, on the basis of his Phase II experience, has chosen for in-depth exploration. Each contract or learning activity package contains the purpose of the program of study, specific curricular objectives, sample evaluation questions, and activities and the resources available for exploration of the selected area, e.g. manufacturing.

If a student decides to terminate a contract, a new contract must be drawn up. This process is not designed to allow the student to casually make and break contracts; a contract can only be broken for good reason. According to the Phase III syllabus, teacher-guided contracts allow for "the widest divergence of individual interest."

During the 1971-72 school year, the Phase III curriculum was organized within the contract system into self-contained modules which could be implemented by the teacher within his/her specialized area. The time period spent by each student within that discipline varied according to the student's preference. Forty-five feeder schools sent 2711 students to the previously identified four OVT centers.

When the decisions for this year's evaluation activities were made, project management requested that the Phase III evaluation be limited to teachers' perceptions of the effectiveness of the program. It was felt that feedback from teachers would be extremely useful in making curricular and program changes for the second year of Phase III operation.

Teacher Attitude

The same teachers who were assigned to teach Phase II were also assigned to Phase III. Therefore, these teachers were asked to respond twice to the same questionnaire -- once based on their Phase II experiences and once on their Phase III experiences. The purpose of this was to determine teachers' attitudes toward the program and the effectiveness of Phase III operations. Fourteen questionnaires were received from thirty teachers.

The responses of this questionnaire suggest that teachers feel that in-service training should occur both before classes begin and throughout the school year. The types of in-service training for Phase III should parallel Phase II training (learning about the middle school philosophy and its relationship to OVT and Career Orientation, learning about the nature of the student enrolled in Career Orientation and learning about teaching strategies which help meet Career Orientation objectives). In addition, the teachers suggested that resource people be available for consultation, field trips be built into the curriculum, and a library be established at each education center.

The response to the usefulness of the Phase III syllabus indicated that 13 out of 14 teachers felt that the syllabus was an unsatisfactory guide for teaching Career Orientation because: (1) the suggested implementation procedures were too theoretical to be practical; (2) the guide was not developed fully enough to follow; (3) the objectives stated were too difficult to obtain.

Only one of the Phase III teachers planned classroom activity without consulting other members of their team. The other teachers coordinated their activities, although one stated that a more efficient method of coordination could be worked out.

The teachers felt that the most effective aspect of Phase III Career Orientation were the films, outside speakers, class discussions, and individual exploration (based on the learning activity package). In addition, teachers felt that the hands-on activities, the direct student involvement in production and decision-making within a company setting were very positive program aspects. Teachers indicated that the least effective aspects of the program involved: producing items for the retailing activity or the merchandise mart (they felt this activity detracted from the in-depth exploration of a few job areas); the limited time allocated for the counseling activity and the fact that some students were enrolled in subject areas which they did not choose to explore.

As in Phase II, teachers liked the feeling of achievement that accompanied working closely with students to produce items and explore various career opportunities. One teacher thought that because the number of class preparations was reduced, the additional time made it easier to prepare

more thorough lesson plans. One teacher remarked that Career Orientation was a practical approach to teaching some subjects normally included in a traditional curriculum--such as home economics. There were a variety of things which teachers disliked about teaching Career Orientation, such as (1) large class size, (2) some lack of student interest in pursuing career exploration, (3) the intense stress on mass production, (4) the difficulty of becoming acquainted with so many students in a short time period, (5) the major emphasis on preparation for the mart rather than student orientation concerning careers, and (6) the teachers' lack of general knowledge about a large number of individual careers.

Ten teachers thought that this program succeeded in helping students select their course of study for the following year. Ten teachers also indicated that students enjoyed the Career Orientation program.

Summary

The training preferences and the in-service training were almost identical to those expressed for Phase II. The course syllabus was unsatisfactory for most teachers.

As with Phase II, the teachers appear to be very interested and challenged by the Career Orientation program. They are willing to invest their time and talent to achieving the program objectives, but they are not always clear about what those objectives really are. The training sessions did not seem to offer practical suggestions for teaching this innovative program in career exploration. Project management might want to reexamine the objectives of each program phase, then design the training which will provide personnel equipped to meet those objectives.

One apparent difference between Phase II and Phase III is the group instruction received in Phase II compared to the self-contained learning activity packages used in Phase III. Although the concept of a business organization seems to work successfully in Phase II, it may not be appropriate for Phase III. The teachers indicated that the retailing activity built into Phase III was the least effective aspect of the program. Informal conversations with the teachers indicated that this situation was one which project management and the teaching staff were aware of and an attempt was being made to select an alternative strategy.

Appendix J
Teachers' Questionnaire
Phase III

SELECTED FUNCTIONAL COMPONENTS OF A VOCATIONAL EDUCATION COUNSELING SYSTEM
FOR URBAN YOUTH

Sponsor: Pittsburgh Board of
Education
341 South Bellefield Ave.
Pittsburgh, Penna. 15213

Evaluation Instruments Prepared
and Distributed by:
American Institutes for Research
710 Chatham Center Office Building
Pittsburgh, Penna. 15219

Career Orientation Phase III

Teachers' Questionnaire

Please answer these questions as comprehensively as possible. You will in no way be personally identified with your responses. Please mail the completed questionnaire to AIR in the self-addressed return envelope.

Thank you for your participation.

1. In your opinion, when should in-service training for the Career Orientation program take place? (check appropriate answers)
☐ before classes begin
☐ after classes begin
☐ throughout the school year
2. Which of the following types of in-service training would be most helpful in teaching Career Orientation?
☐ a. learning about the middle school philosophy and its relationship to OVT and Career Orientation
☐ b. group dynamics sessions
☐ c. learning about the nature of the student enrolled in Career Orientation
☐ d. learning about teaching strategies which help meet Career Orientation objectives
☐ e. other (please describe) _____

3. Which of the following types of in-service training have you received as a Career Orientation teacher?
☐ a. learning about the middle school philosophy and its relationship to OVT and Career Orientation
☐ b. group dynamics sessions
☐ c. learning about the nature of the student enrolled in Career Orientation
☐ d. learning about teaching strategies which help meet Career Orientation objectives
☐ e. other (please describe) _____

4. Has the syllabus for this course been a satisfactory guide for you to use in teaching Career Orientation? _____ If not, please explain.
- _____
- _____
- _____
5. Do you usually coordinate teaching activities with other members of your team? _____
6. In your opinion, what aspect of the Career Orientation program is most effective?
- _____
- _____
7. In your opinion, what aspect of the Career Orientation program is least effective?
- _____
- _____
8. What do you like best about teaching Career Orientation? _____
- _____
- _____
9. What do you like least about teaching Career Orientation? _____
- _____
- _____
10. Has the program succeeded in helping students select their course of study for next year?
- _____ Yes _____ No
11. Do you think students enjoyed the Career Orientation program?
- _____ Yes _____ No

Graduate Placement and COOP Programs

Introduction

This segment of the report summarizes the efforts of the placement program for high school graduates and the cooperative work experience (COOP) program for secondary students. Although their specific objectives differ, the overall objectives of placement and COOP are linked. The graduate placement program attempts to find employment for graduating seniors or locate situations in which students become apprentices in particular trades. The COOP program is designed to provide work experience during the senior year while the student completes the academic and vocational requirements for graduation. Following graduation, students often remain in the same job they had during their work experience. The Pittsburgh COOP program has been expanded to serve both those students enrolled in skill-centered programs and those who have never enrolled for such training (Project SET).

The results of last year's evaluation indicated that both programs were well conceived and administered, with an open mind toward continuous improvement by the program staff who operate the program.

As previously mentioned, the major evaluative effort of this project focused on other vocational counseling segments, therefore, the following comments are based on a review of the current operations.

Program Description

Graduate Placement

The purpose of the graduate placement program is to find employment for all graduating seniors who want to find jobs. The follow-up study of June 1971 high school graduates, prepared by Systems-Wide Programs and Services of the Pittsburgh Public Schools, indicates that 4497 students graduated from the Pittsburgh Public Schools. Of that number, 56.8% entered post high school education, 25.3% became employed, 14% either left Pennsylvania, were unavailable for immediate employment, or were waiting for job placement; 3.9% entered the Armed Forces. Table XIII (totals) provides follow-up data on all 1971 graduates. It is suggested that in the future more attention be focused on determining why the 5.2% awaiting

employment (Table XV) were unable to find positions. A better understanding of their training and backgrounds would be useful in determining how to modify the graduate placement program in the years ahead.

The COOP Program

The COOP program is designed to provide work experience as an adjunct to classroom instruction during a student's senior year. The COOP program includes work experience in all areas of comprehensive specialization. As of June 1971, 421 seniors were enrolled in skill-centered courses; the enrollment figures include students from both the academic and general courses of study. Upon graduation, 33.3% had entered post high school education, 46.2% were employed, 16.2% were either residing in another state, unavailable for immediate employment or waiting for job placement, and 4.4% entered the Armed Forces. This breakdown is also depicted in Table XIII, under skill-centered.

Both these programs are integral parts of a broader system of counseling which includes testing and guidance components, the instructional process and other school and work-related experiences which influence the student. This summary reports the results of the placement effort in both programs. In last year's final report, a more comprehensive evaluation of these programs was presented. The results indicated the program staffs administered a well-functioning program.

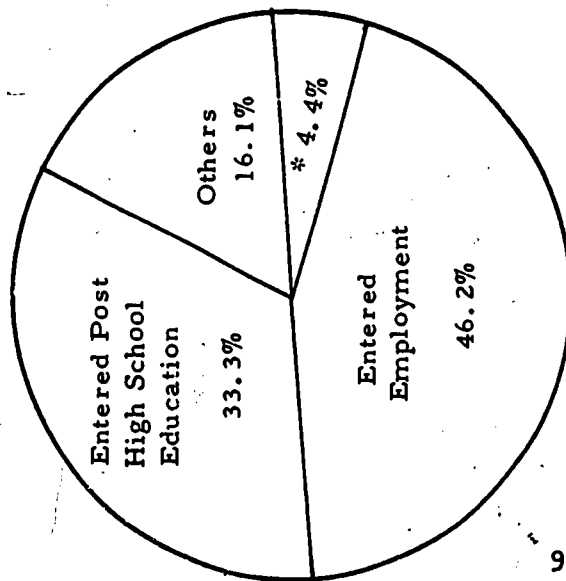
A new feature was added to the COOP placement facilities at the OVT Center. Based on a working model of a six year operational School of Industry Job Development Program, the Pittsburgh Urban League worked with the Pittsburgh Board of Education to design and implement a job center in each of five Pittsburgh high schools. The purpose of these job centers is to provide a source of job information to students and to offer job placement opportunities for seniors in the inner-city who are not continuing their formal education beyond high school. This program will be supported by the Board of Education on a system-wide basis in 1972-73.

The program offers on-site recruiting of students by employers in a mass job placement effort at the job centers. For students not exposed to the skill-centered training programs, supportive assistance is provided in

the area of pre-work preparation. For example, the student can be interviewed in the familiar atmosphere of his school surroundings. Many students are placed in jobs as a result of the job center.

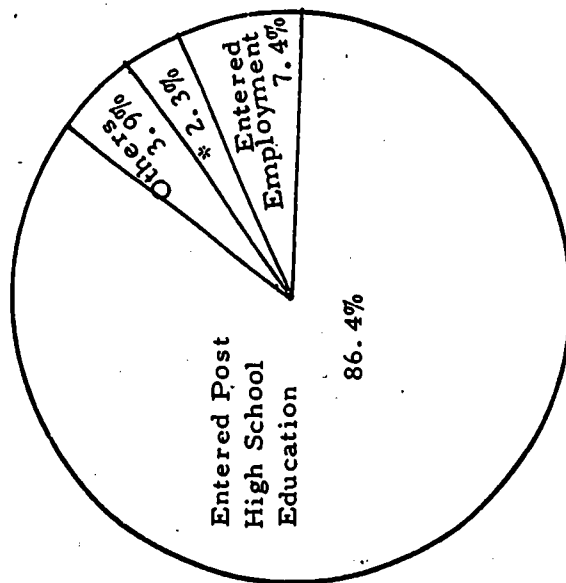
The job center concept is intended to supplement the system-wide placement program currently in existence. The following table shows the results of the placement effort as of June 1971.

FOLLOW-UP OF ALL GRADUATES - CLASS OF JUNE, 1971 - PITTSBURGH PUBLIC SCHOOLS
AS OF OCTOBER 31, 1971
GRAPHIC DESCRIPTION BY PERCENTAGES

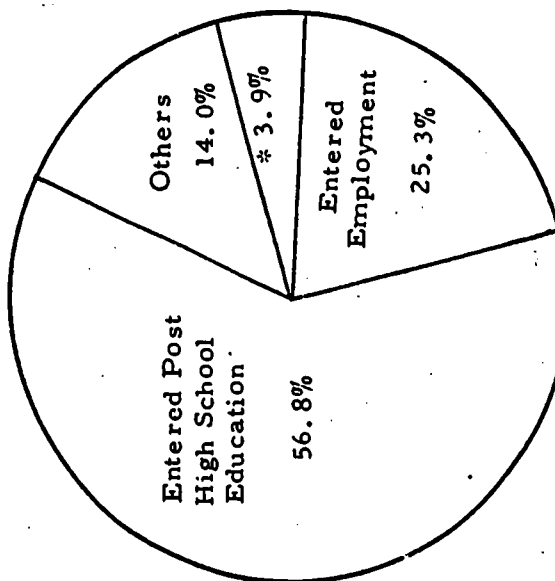


SKILL-CENTERED

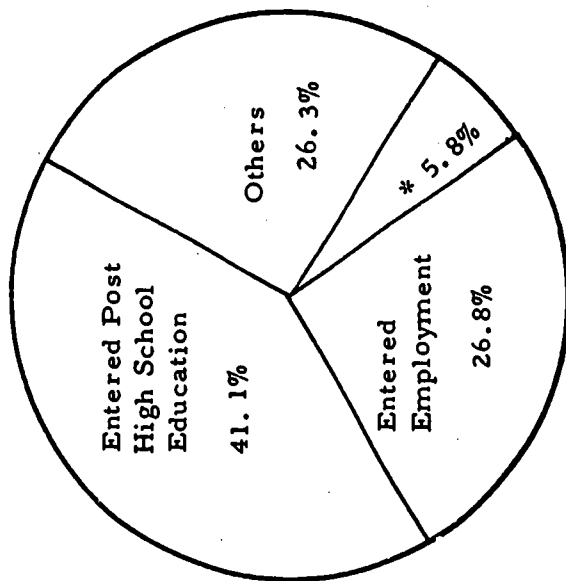
Post High School Education
College Bound
Post Graduate at Connelley
Business & Technical Schools
Others
Moved out of state
Unavailable for immediate employment
Did not graduate
Waiting for job placement
all categories



ACADEMIC



TOTAL PERCENTAGES OF GRADUATES



GENERAL

* Entered Armed Forces
Entered Employment
Employed Full-Time - Academics & General Only
Employed Full-Time - Related to Preparation Skill-Centered Only
Employed Full-Time - Unrelated Preparation Skill-Centered Only
Apprenticeships